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Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Auburn 12 Has Dual Ratio Rear Axle Many Innovations in Cadillac-La Salle

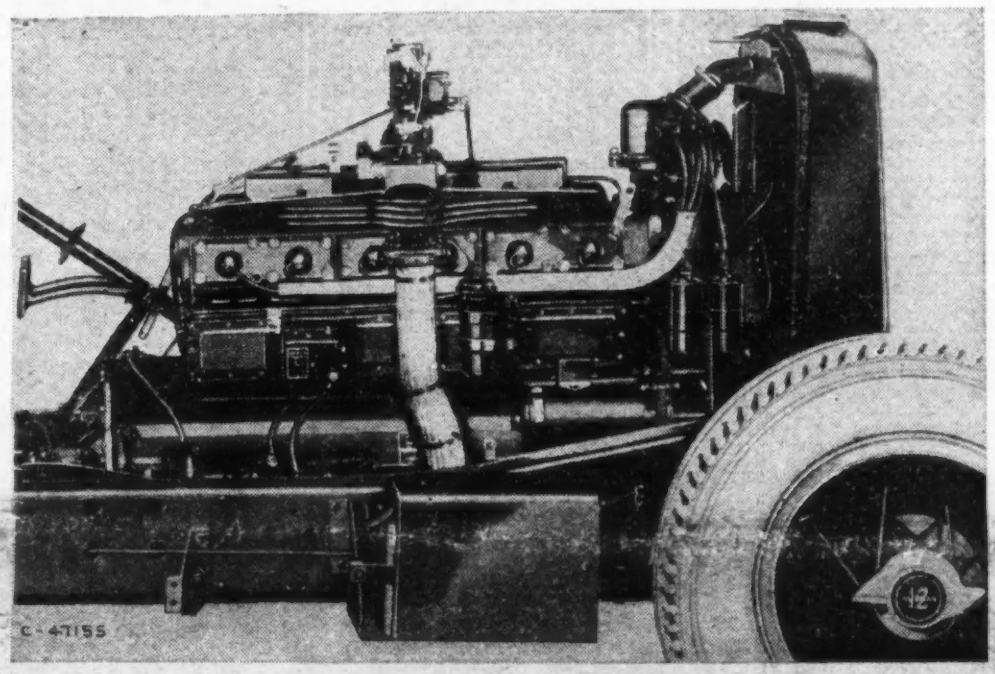
CADILLAC OFFERS 8, 12 AND 16 PLUS LA SALLE

Syncro-Mesh, Free-Wheeling and New Body Styles

Detroit, Jan. 1. — The Cadillac Motor Car Company today made public details of its 1932 lines, which embody new models of La Salle, Cadillac V-8, Cadillac V-12 and Cadillac V-16. The company announces twenty-three fundamental improvements which have been incorporated in all four lines. There are in addition a number of developments to be found in the individual lines.

The list of general improvements includes the following: Triple silent syncromesh transmission, a full-range ride regulator, clutch control free wheeling, six point rubber cushioned engine suspension, a five-beam headlamp control, Cadillac no-flex frames, fixed adjustment compres-

(Continued on Page 2)



A RIGHT SIDE VIEW of the new Auburn 12-160 engine shows also the outboard mounting of the battery

HUDSON-ESSEX ANNOUNCES NEW CANADIAN PLANT

Tilbury, Ontario, Jan. 1.—Announcement of the formation of Hudson-Essex of Canada, Ltd., to manufacture Hudson and Essex cars in Canada, was made here today by officials of the new company. The plant, which is located in Tilbury, will be operated by Canadian labor and productive activities are now under way.

A. E. Barit, president of Hudson-

(Continued on Page 4)

REUTER SEES INDUSTRY LEADING COUNTRY ON WAY TO RECOVERY

Pontiac, Jan. 1.—Recession of industrial depression through co-operation of the automotive industry and the driving public is seen in a statement by I. J. Reuter, president of the Oakland Motor Car Company, in reviewing the company's activities for the past year.

"The automotive industry and the automobile driving public are making it difficult for the continuation of depressed conditions in the industry," Mr. Reuter said. "Gasoline consumption has been on the increase for the past two years,

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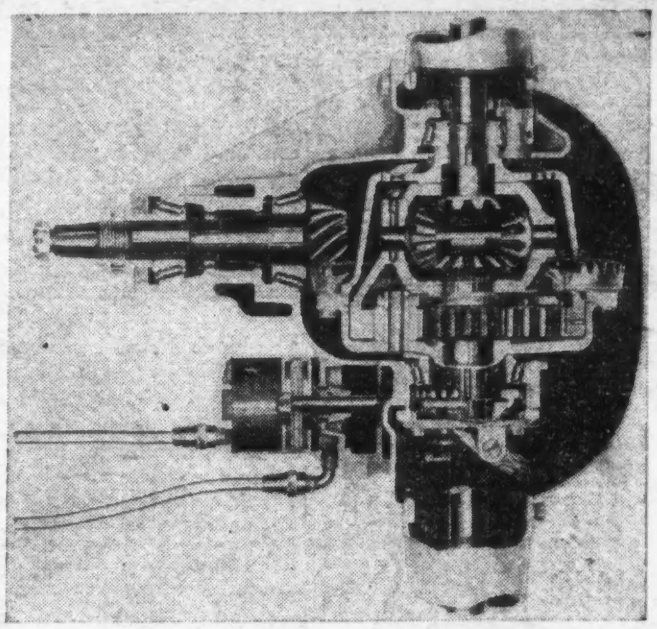


A SECTIONAL VIEW of the new Auburn dual ratio rear axle

NEW PONTIAC LINE SHOWN AT OAKLAND FACTORY LUNCHEON

Pontiac, Jan. 1.—Heralding the public announcement of the new Pontiacs, a pre-showing of 1932 models was held in Pontiac for local business and professional men December 30, by the Oakland Motor Car Company. Invitations were ex-

(Continued on Page 10)

DECEMBER OUTPUT NEAR 110,000 UNITS, SURVEY INDICATES

New York, Jan. 1.—A telegraphic check-up of December production reveals the fact that the industry's output was largely stepped up over the November low level. The total production of vehicle units during December, 1931, was in excess of 110,000. Just how high the figure

(Continued on Page 4)

DE SOTO LAUNCHES OPTIMISTIC CAMPAIGN WITH NEW SIX LINE

Detroit, Jan. 1.—The De Soto Motor Corporation launched an optimistic 1932 program here today with the announcement that a brilliant new De Soto six, stylishly advanced in appearance and embodying several highly important engineering developments new to its price class, will be introduced next Saturday, January 9.

Byron Foy, president of De Soto, declared that his organization was preparing to accommodate a sizable increase in business this year as a result of the new features and the added value built into the 1932 car.

"When we first began to think of this new De Soto nearly a year ago," said Mr. Foy, "our engineers under the direction of Fred M. Zeder, vice-president in charge of

(Continued on Page 2)

AUBURN EIGHT CONTINUED WITH IMPROVEMENTS

All Prices to Be Decided Just Before New York Show

Auburn, Ind., Dec. 31.—Auburn today made public details of its lines for 1932, which comprise a brand-new 133 - inch twelve - cylinder chassis, the 12-160, with dual ratio rear axle and a redesigned eight-cylinder car, the 8-100, which also carries the dual ratio axle on its custom models.

Outstanding characteristics of the twelve-cylinder chassis are the V-type block-cast Lycoming engine, the dual ratio rear axle, free wheeling, syncromesh, ride control and the Startix automatic starting device.

The eight-cylinder chassis carries many of the features that were found in last year's model, plus the dual ratio rear axle, which will undoubtedly arouse a lot of interest when the general public gets a chance to inspect it.

The engine developed by Lycoming is a V-type with overhead valves, the two banks cast en bloc. Bore and stroke of the twelve are 3⅛ by 4¼, giving a cubic inch displacement of 391. The engine has a

(Continued on Page 8)

WHITE CO. ORDERS MATERIALS FOR HUGE TRUCK ORDER

Cleveland, O., Jan. 1. — A large contribution to prosperity in the New Year—orders for 13,500,000 pounds of materials—has been placed by The White Motor Company for use in manufacturing 774 heavy duty White trucks for the city of New York. Delivery of ma-

(Continued on Page 3)

New Cars in Dealers' Hands As of Jan. 1 About 180,000

New York, Jan. 1.—Estimates of the number of new passenger cars in the hands of dealers in the United States as of January 1 range from 155,000 to 180,000, subject to revision when the final production and sales figures are available.

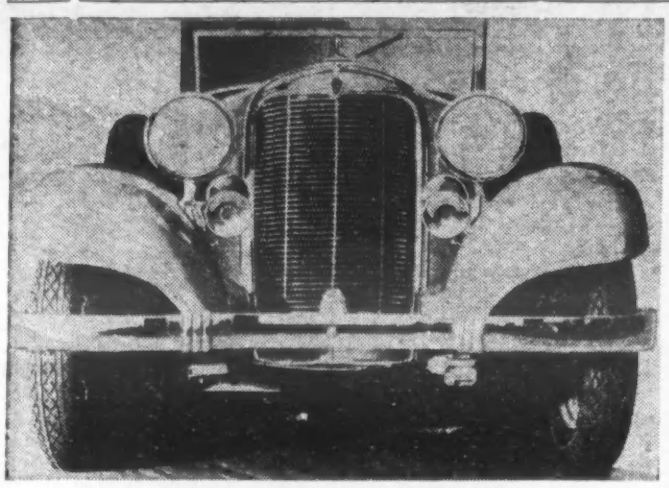
A complete revision of dealer stock statistics for the full year 1931, with consumption placed over against production, reveals a sharp reduc-

(Continued on Page 3)

ELEVEN MONTHS SALES COMPILATIONS

COMPLETE NEW PASSENGER CAR registrations for the first eleven months of 1931, complied by makes and states, will be found on pages 6 and 7 with comparative figures for the same period in 1930.

Watch for the Oldsmobile 6 and 8 Story in Tuesday A. D. N.



FRONT end view of new De Soto six

New Cadilac-La Salles Offer Many Innovations

(Continued From Page 1)

sion type spring shackles, cast molybdenum brakes, air cooled fuel lines and generator.

The V-eight cylinder engine used in the La Salle and Cadillac eight chassis has a bore and stroke of 3⅜ by 4½ and shows a taxable horse power of 36.45 and a brake horse power of 115 at 3,000 r. p. m. The compression ratio of this engine is 5.38 to 1, but an optional ratio of 5.7 to 1 may be had without additional cost. Piston displacement is 353 cubic inches. A six-point rubber mounting is used on this engine, whereas the La Salle power plant of last year had only a three-point suspension.

A three-port manifold replaces the two port job formedly used. Three branches instead of two lead to each cylinder blocks; the individual branches feed all cylinders which fire 90 degrees apart. The carburetor of Cadillac design, has been considerably changed. The carburetor is of the air valve type, with a side-draft air inlet. This design is used so that the air reaches the carburetor by flowing straight down and passing horizontally through the side draft inlet. In this way the air passes but one bend instead of two, as was formerly the case. A mechanical fuel pump supplies gas from a thirty gallon tank.

The cams on the camshaft have been redesigned to give quieter valve operation. The camshaft this year is called upon to drive a new vacuum diaphragm pump, which operates the windshield wiper.

New pistons have been installed in this year's models. This part is of molybdenum cast iron, plated with tin. The piston has four rings, three above and one below the wrist pin. The two lower rings are of the oil regulating type.

Connecting rods present a new feature in a rolled bronze wrist pin bushing. The rods are gun drilled for pressure lubrication of the wrist pins. Bearings are 2⅜ by 1⅜ inches.

A new radiator has been fitted with a deeper core section and a greater capacity, six and a half gallons. A new fan, with larger blades, is designed to increase cooling efficiency.

The new Cadillac syncromesh transmission, termed the triple silent, will arouse interest. There are nine ball and roller bearings in this unit, all bearings being of the anti-friction type, except for the reverse idler shaft. Second and high speeds operate on the syncro-mesh principle and all forward gears are of the constant mesh helical type, including low gear. Adjustment of the synchronizing mechanism is possible from outside the gear box through the use of two yoke synchronizers instead of one.

The free wheeling unit presented on the Cadillacs and the La Salles differs from the conventional in the method by which it controls the rate of engagement of the clutch. An accelerator controlled valve is used, which permits compressed air to escape gradually from the vacuum cylinder to give a smooth engagement. The engagement regulator is controlled by the throttle position, instead of by the gear position in the transmission. Five bleeder ports are used on this regulator, which functions only during the last part of the piston stroke. In this way the rapidity of the piston movement up to the point of the beginning of the engagement is not retarded.

The vacuum line extends to both intake manifolds. Two plungers form the main control valves in the system, the first opening the vacuum line for operation when the foot button is pressed. This control button is located under the clutch pedal. When the foot is lifted from the button the clutch immediately engages in a way similar to the operation of the clutch pedal. This immediately makes connection between the engine and the rear wheels.

A newly designed three-quarter floating rear axle finds a place on the two eights. The axle has a ratio of 4.36 to 1 and 4.60 to 1. A new and smaller drop center wheel

(Continued on Page 5)

DE SOTO LAUNCHES OPTIMISTIC CAMPAIGN WITH NEW SIX LINE

(Continued from Page 1)

engineering, recognized the fact that 1932 would be a year of record values, both in the automobile industry and out.

"In our new product, we feel that we have anticipated the popular demand for an unusual automobile, both from the standpoint of more automobile for the dollar and from the standpoint of advanced engineering design."

The new car went into production here last week. After the first few cars were built production was speeded up as fast as is consistent with De Soto's quality manufacturing methods, so that dealers in all parts of the country might be in position to make prompt deliveries.

CHRYSLER GRANTED INJUNCTION AGAINST TRADE MARK USAGE

Los Angeles, Jan. 1.—The United States District Court at Los Angeles has just granted Chrysler Corporation a preliminary injunction against Roberts Devices, Ltd., of Los Angeles, restraining use of the trade mark "Floating Power." "Floating Power" is the name of the new engine mounting developed by Chrysler engineers, and was first used this year on the company's four-cylinder Plymouth car.

The bill of complaint was filed by Chrysler Corporation showing that Roberts Devices, Ltd., was engaged in manufacturing and selling a motor mounting for replacement purposes on competing makes of cars. This motor mounting, while different in structure from the Chrysler product, was designated by Roberts Devices, Ltd., as "Floating Power." Chrysler complained that the trade mark "Floating Power" had been originated by it and that it had spent a large sum of money in advertising the name.

CADILLAC-LA SALLE PRICES $2,395 TO $4,645

Detroit, Jan. 1.—Prices on the new Cadillac-La Salle models are announced as follows:

La Salle V-8, Series 345-B
(130-inch Wheel Base)
(Body by Fisher).

Style.	List.
2-Passenger Coupe	$2,395
5-Passenger Sedan	2,495
5-Passenger Town Coupe	2,545
2-Passeng'r Convertible Coupe.	2,545

Cadillac V-8, Series 355-B
(134-inch Wheel Base)
(Body by Fisher

Style	List
2-Passenger Coupe	$2,795
5-Passenger Standard Sedan	2,895
2-Passenger Roadster	2,895
2-Passenger Convertible Coupe	2,945

Cadillac V-12, Series 370-B
(134-inch Wheel Base)
(Body by Fisher)

Style	List
2-Passenger Coupe	$3,495
5-Passenger Standard Sedan	3,595
2-Passenger Roadster	3,595
2-Passenger Convertible Coupe	3,645

Cadillac V-16
(140-inch Wheel Base)
(Body by Fisher)

2-Passenger Coupe	$4,495
5-Passenger Standard Sedan	4,595
2-Passenger Roadster	4,595
2-Passenger Convertible Coupe	4,645

FIRST VIEW OF 1932 MODELS!
THIRTY-SECOND NATIONAL
AUTO SHOW
Jan. 9 to 16 (except Sunday)
A NEW MOTOR CAR ERA ARRIVES! Never before so many improvements — never before such remarkable price values. Forty-three exhibitors of cars and commercial vehicles — 300 models — Modish bodies — Modern accessories. Shop Equipment section open to public after 5 P. M.
HOURS: Saturday, 2 P. M. to 10.30 P. M. Beginning Monday, 10 A. M. to 10.30 P. M.
ADMISSION 75c
GRAND CENTRAL PALACE
Lexington Avenue and 46th Street, New York

MULLINS STAMPINGS
FOR THE AUTOMOBILE INDUSTRY

WRITE!
Mullins Mfg. Corp., Salem, Ohio

SPARKS from DETROIT

New Car For New Age
* * *
Taken For Ride
* * *
Here's the Credit
* * *
Tag Number Scramble

Chris Sinsabaugh—Detroit Editor

"A NEW Car for a New Age" is Hupmobile's 1932 slogan, so why not start the first column of the new year with the story of the preview of the Hupmobile as recorded in the minutes of the Detroit chapter of the Paul Pry Association? Motion duly seconded and adopted unanimously by the Peeping Tom, Webb of the Free Press, Ross of the Times, Gronseth of the Wall Street Journal and various athletic members attending.

* * *

NATURALLY THEY TOOK US for a ride in the new car, and that ride was up to specifications in every detail, although the writer was grossly deceived when he estimated the jogging speed we were making at forty miles per hour, whereas the recording instrument showed sixty.

That was only one of the surprises, for the job as a whole was in harmony with the big thought behind it all—greatly increased roadability and driving ease, based on the elimination of vibration. The verdict: A sweet running car and undoubtedly, in the estimation of the Paul Prys, better even than Hupmobile's optimistic claims.

This was well illustrated when we were told the ri would include the awful Belgian block stretch along Twomb Street, to prove that there is no such thing as shimmying the new models. Anticipating this part of the demonstration, we asked impatiently when we'd hit Twombly, only to be told we had just got off it.

* * *

BEFORE THE RIDE we looked over the chassis in George Clarke's salesrooms and just ached to write something about it, only to be told that the ban is on until next Wednesday, when Automotive Daily News will describe the line in detail.

However, we got a special dispensation which relieves the pressure to a certain extent. We can say that the chassis torsional stabilizer, for which Engineer E. S. MàcPherson is given full credit for developing, is Hupmobile's big talking point. The theme song is that the chassis is tuned like a piano, and for the first time acoustics enter into the design and manufacture of an automobile. The whole idea is based on the elimination of grouped or synchronized vibration.

And on top of that, Hupmobile has a new design that promises to repeat for the company the signal success of 1929.

* * *

ANENT THE PARAGRAPH Tuesday telling about our own Harry Tarantous' Christmas card, designed along theatrical lines, in which we said that the leading man of "Happiness" was our boss and the leading lady his boss, we have a come-back from Mrs. H. A. T., who declares: "You do not render unto Caesar the things that are Caesar's. That Christmas card job originated with me and I directed Harry in carrying it out. Harry had nothing to do with it, except to pay the bill. I want credit or I will cry."

All of which only confirms what we said about the leading lady being our boss' boss. And here's the credit.

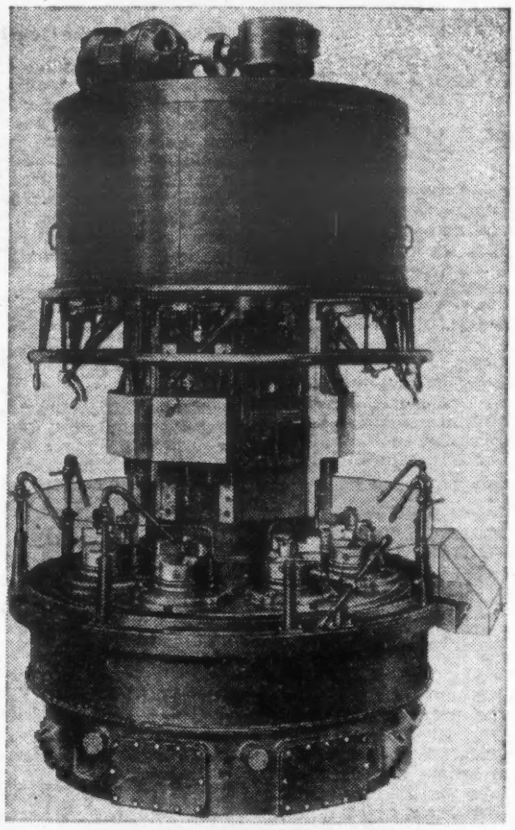
* * *

THE USUAL SCRAMBLE for tag numbers under 1000 is going on in Michigan as the secretary of state issues the new licenses. So strong is the pressure that he has been forced to alphabet the low numbers in order to satisfy those with pull enough to get them.

There's one man I know who never has any of that worry. He's Sidney S. Gorham, the prominent Chicago lawyer and a director of the Chicago Motor Club, who carries Illinois No. 1 and has held it ever since the inception of Illinois' motor law. Gorham, you know, framed that law, and being the father of the bill he inserted a clause to the effect that you can retain your old number provided you apply for it twenty days before the registration books open.

Gorham, of course, was given No. 1 that first year, some fifteen years ago, and since then he always has got his application in in time to retain it. Carrying the No. 1 idea still further, Gorham's business address is No. 1 North La Salle Street.

Bullard's New Center Lathe And 2 Mult-Au-Matic Types



TYPE D—8-Spindle Mult-Au-Matic

The Bullard Company of Bridgeport, Conn., is announcing a new type D Mult-Au-Matic type D center lathe and type C Mult-Au-Matic.

The type D Mult-Au-Matic may be had in either six or eight spindle sizes. To meet the higher speeds and feeds in use today the base of the new machine, cylindrical in form, has been massively built to serve as a rigid surface plate upon which is mounted the machine proper and to insure continued accuracy of alignment.

The rigidity of the new column has been materially strengthened through the cross section areas of the side walls and ribs, and, in proportion to its added strength, is firmly secured to the base. On the lower portion of the column is a long adequately lubricated taper carrier bearing, while on the extreme lower end is mounted the lower ball race of a ball thrust bearing. On the upper portion of the column are mounted the tool carrying heads. These are of improved massive design and construction. Their respective feed works are solidly mounted on a strongly ribbed base, which in turn, is secured to the top of the column above the tool carrying heads. This method of construction is designed to give complete co-ordination of the three major working elements, spindles, feed works, and tool carrying heads. The new carrier design results in additional strength, and affords heavy, well-ribbed single-piece casting which provides solid support for the work spindles. This carrier is also provided with a long adequately lubricated taper bearing, corresponding to the column taper bearing, as well as the upper ball race of the vertically adjustable ball thrust bearing.

The corresponding taper bearings on column and carrier permit of close adjustment, resulting in extreme accuracy at this elementary

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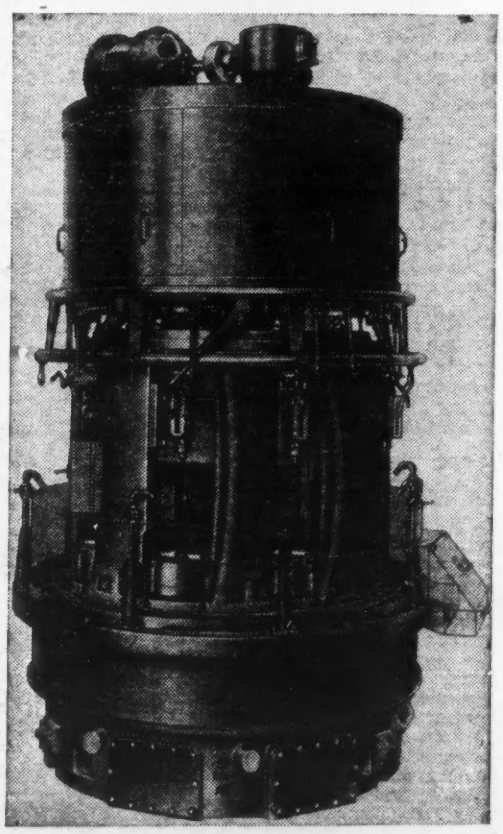
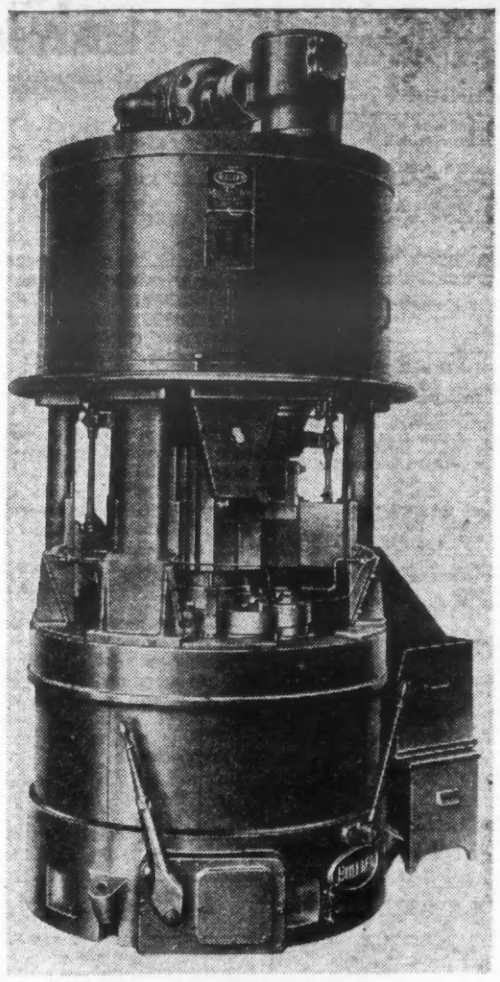


TYPE D—8-Spindle Mult-Au-Matic center lathe



TYPE C—6-Spindle Mult-Au-Matic

NEW CAR STOCKS IN DEALERS' HANDS ON JAN. 1 180,000

(Continued From Page 1)

tion in the course of the year from the levels at which stocks stood during most of 1930.

The difference in estimates made by various statisticians in the trade is accounted for in part by the different methods used in arriving at retail sales of cars in the domestic market. The government made public a national dealer stock figure in 1926 and again in 1928. When efforts were made to fill in the months between, it was found that it was necessary to make an allowance of between 3 and 5 per cent. for retail sales over the actual registration figures as reported by the various states. In other words, it was necessary to increase the registration figures by this amount to arrive at the apparent actual retail sales of cars.

Some of the observers of the industry take the view that since 1928 the registration figures have improved in accuracy in reflecting the actual sales and have cut down the allowance over the registrations to 1 per cent. or below. Others, however, have held to around 3 per cent., maintaining that the same discrepancy now exists as in 1928. This naturally leads in the course of the year to a considerable difference in the estimates of dealer stocks.

Official production and sales figures for November indicate that the estimate of dealer new car stocks as of December 1, as published by Automotive Daily News earlier this month, was somewhat lower than justified by the later figures. Rather than around 123,000, it now appears that stocks of that date were 25,000 or 30,000 higher.

Estimates which allow for little or no discrepancy in the registration figures place current dealer stocks at around 180,000, while those still allowing for sales not shown by registrations place the total down to as low as 155,000.

Whichever figure is accepted, it reflects an important reduction in stocks from a year ago. The estimated total for January 1, 1931, was 284,400, and, on the basis of 180,000 for the beginning of this year, the decline was more than 35 per cent. The 155,000 estimate indicates a drop of 45 per cent.

BUSES REPLACE TROLLEYS

Princeton, N. J., Jan. 1.—Discontinuance of street railway service between Shiptauken Creek and Princeton Borough on the Trenton-Princeton route of the Trenton Transit Company has been approved by the Board of Public Utility Commissioners.

WHITE CO. ORDERS MATERIALS FOR HUGE TRUCK ORDER

(Continued from Page 1)

terials starts immediately, A. G. Bean, president of The White Company, announced.

Analysis shows that 150 manufacturers of steel, rubber, glass and many other basic commodities are affected. "To meet the delivery schedule set by the city of New York approximately 600 orders have been placed in more than 50 cities throughout the country," President Bean said. The 774 trucks are of a special type for garbage and rubbish collection and snow removal service. Practically all materials must be newly ordered because only a very small inventory is on hand, President Bean said.

"The unusual size of the New York order makes it a striking example of how today's log jam of business can be dislodged by the judicious buying of needed equipment. Besides enabling the White Company to give full-time employment to its factory workers, the order contributes to the pay rolls and purchases of 150 other employers. Their pay rolls and purchases, in turn, affect hundreds of others. The order also will move at least 1,250 freight cars in and out of our factory siding; it will greatly increase our consumption of coal and electrical power during the next three months. The oil industry comes into the picture in no small way after the truck are completed, for their tanks will hold 16,000 gallons of gasoline and their crank cases 2,500 gallons of oil."

George W. Smith, Jr., White Company vice-president in charge of manufacturing, pointed out that 774 freight cars will be needed to transport the finished trucks to New York.

"Multiply this man's case by hundreds and you will have some idea of what an order of this kind means to the man in the White factory alone," Vice-President Smith said.

This year . . Wise dealers are pushing the PINES WINTERFRONT

. . . every sale makes them $6 profit

PINES WINTERFRONT is an easy selling, big profit item that their customers want and need. An item that makes the dealer $6 profit in 10 minutes. Not a novelty accessory that may or may not sell. But a proved necessity with an established demand everywhere.

Low prices make sales easier

At only $15 for small cars; $20 for large cars, the Pines Winterfront is the season's real bargain in motor protection. At this low price a car owner cannot afford to risk cold weather dangers when this automatic motor and radiator protection provides motor insurance far beyond its original cost.

An assortment of real sales ammunition has been prepared to help you—and is available through your Pines distributor. Get in touch with him at once. Write, phone or wire him your order at once.

PINES WINTERFRONT COMPANY
1151 North Cicero Ave., Chicago

NEW PINES FUEMER

A New Profit-Maker for Dealers

Here's the new device—the Pines Universal Fuemer—the only device that instantly starts cold motors! It fits all model cars and motors and can be installed in a jiffy. Used as standard equipment by three fine car manufacturers. Not merely an accessory, but a NECESSITY. Ask your Pines distributor for full details.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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Sales vs. Production

IN a recent issue of Automotive Daily News there appeared an extremely interesting compilation bringing into direct comparison sales and production figures for the first eleven months of 1931. The November sales figures, now practically complete, made this possible.

Automotive executives, factory and dealer alike, will find much of interest in these figures. They show that during the period in question sales of passenger cars totaled 1,830,000, in comparison with a production total of 1,870,000. In other words, over the first eleven months of the year production exceeded the actual number of cars placed in owners' hands by a mere 40,000 units. And even here we do not get the whole story, because our production figures include complete cars exported, and the sales figures, being based on registrations in the various states, do not show cars which have been run with old license plates. It is a habit in some states, particularly in the rural districts, to transfer old plates to the new car without the formality of registering the latter. This bit of rural economy would account for many thousands of cars actually sold but never getting into the official sales compilation. It is almost certain that, taking these two factors into consideration, more cars have been sold in the United States than have been built for the domestic market.

The tables accompanying the story in Automotive Daily News contain another interesting subject for thought. Beginning with July, sales, even without making allowance for vehicles not registered or exported, have exceeded production by many thousands. The industry has leaned over backward in its desire to clear decks for the 1932 drive.

In any analysis of our present position we must not overlook cars junked during 1931. With sales exceeding production, it is obvious that cars sent to the scrap heap during 1931 will reduce by just that much the total number of vehicles in operation next year. The best authorities estimate that the average motor vehicle in this country has a useful life of between six and seven years. Granting this, the 3,948,000 passenger cars manufactured in 1926 have gone to the junk pile during 1931. We should begin the year 1932 with a deficit of just this number of passenger units. This is the delayed market about which we hear so much. Even if general conditions compel a good many owners to keep ancient vehicles in service, and in some cases even go without replacing discarded cars, there is still a wonderful replacement market from which to draw. With dealer stocks lower than ever before in modern history, and a huge replacement market, automobile merchants have every reason to begin the year with confidence, even though general conditions are not all that we would like to have them.

Incidentally, the automobile manufacturers, with their restraint in production during 1931, their improvement of their product, their lowering of prices, have pointed out the high road to revival to all other industries.

"THE truck is and always will be an individual unit of transportation. It is adaptable; it can go anywhere, anytime, at a moment's notice. It is not and never will be a system of transportation comparable to the rail."—A. J. Brosseau, vice-president of the N. A. C. C.

And the sooner the railways realize this and stop trying to tax the truck out of existence, the better it will be for all concerned. Instead of attacking the motor truck the railways might better adopt it and co-ordinate what are essentially separate transportation means, contributing to the one end—the movement of freight in the quickest, most economical manner.

Trade Association News

Cleveland Dealers' Show To Be Huge Civic Event

Cleveland, Jan. 1.—Opening of Cleveland's annual automobile show Saturday, January 30, is to be made into a great civic event, with the whole town celebrating the city's biggest winter exposition, an event which, all hope, will mark a trend upward in the automobile business and its allied industries.

Forty Cleveland civic organizations have joined in preparing for a great luncheon to mark the opening of the show. This luncheon will be held in the public auditorium where the motor car show is to be held for eight days. At this luncheon the principal speakers will be Arthur Brisbane, noted editorial writer, and R. H. Grant, General Motors' vice-president in charge of sales.

Two big parades of 1932 automobiles are scheduled for opening day, too. One will be through Cleveland's west side and one down Euclid Avenue, the two merging at the auditorium.

This will be the greatest kick-off any automobile show in the Middle West ever was given, and the enthusiasm with which Cleveland people are preparing for the affair indicates that it will be the outstanding civic and industrial event of the winter.

The Cleveland show runs from Saturday, January 30, to Saturday, February 6, and is open daily from 10 a. m. to 11 p. m., including Sunday. The show management is preparing to entertain thousands of northern Ohio residents who have been waiting patiently for the displays of the complete lines of motor cars for 1932.

Thirty makes of passenger cars will be shown. Commercial vehicles, shop equipment, accessories, a style show and a pleasing entertainment program are added features.

COMING EVENTS

JANUARY

9-16—**New York City.** National Automobile Chamber of Commerce. National Automobile Show.
9-16—**San Francisco.** Annual Automobile Show, West Coast-San Francisco Motor Car Dealers Association.
9-17—**Los Angeles.** Annual Automobile Show of the Los Angeles Motor Car Dealers Association
11-14—**Detroit, Mich.** American Road Builders Association, twenty ninth convention and show.
14—**New York City.** Society of Automotive Engineers, annual dinner Pennsylvania Hotel.
16-18—**Detroit, Mich.** National Tire Dealers Association, annual meeting.
16-23—**Newark, N. J.** Newark Automobile Dealers' Association's annual show.
16-23—**Buffalo, N. Y.** Annual automobile show of Buffalo Automotive Trade Association, Inc., 174th Regiment Armory
17-22—**Cincinnati.** Automobile show of Cincinnati Automobile Dealers' Association
16-23—**Milwaukee.** Annual Automobile Show, Milwaukee Automotive Trades, Inc.
16-23—**Omaha, Neb.** Annual show, Omaha Auto Traders Association.
18-20—**Chicago.** National Wheel and Rim Association, Edgewater Beach Hotel, convention.
18-23—**Philadelphia, Pa.** Philadelphia Auto Trade Association, show.
18-23—**Portland, Me.** Annual Automobile Show.
18-23—**Brooklyn, N. Y.** Brooklyn Motor Vehicle Dealers' Association, show.
18-23—**Louisville, Ky.** Louisville Automobile Dealers' Association, show. Garland Lea, manager.
18-23—**Rochester, N. Y.** Annual Automobile Show, Rochester Automobile Dealers Association, Inc.
21-24—**Dubuque, Ia.** First Annual Automobile Show, Dubuque Automobile Dealers' Association.
23-28—**Columbus, O.** Annual Automobile Show, Columbus Automobile Dealers Company. Auditorium.
22-30—**New York.** National Motor Boat Show, Grand Central Palace.
23-30—**Detroit Mich.** Annual show. Convention Hall.
23-30—**Baltimore.** Annual Automobile Show.
23-30—**Minneapolis.** Annual Automobile Show of Minneapolis Automobile Trade Association.
23-30—**Pittsburgh.** Annual automobile show of Pittsburgh Automobile Dealers' Association, Motor Square Garden
25-29—**Detroit, Mich.** Society of Automotive Engineers, annual meeting. Bok Cadillac Hotel.
25-30—**Paterson, N. J.** Annual Automobile Show, Paterson Auto Trade Association, Armory.
25-31—**Seattle, Wash.** Annual Automobile Show, Seattle Automobile Dealers' Association, Civic Auditorium.
30-Feb. 6—**Washington, D. C.** Washington Automotive Trade Association, show.
30-Feb. 6—**Cleveland.** Annual Automobile Show of the Cleveland Automobile Manufacturers and Dealers Association, Public Auditorium.
30-Feb. 6—**Chicago, Ill.** National Automobile Chamber of Commerce. National Automobile Show
30-Feb. 6—**Chicago, Ill.** Automobile Salon Hotel Drake.

FEBRUARY

4-6—**Springfield, Ill.** Annual Automobile Show, Springfield Automobile Dealers Association, State Arsenal.
6-13—**St. Paul.** Annual Automobile Show St. Paul Automobile Dealers Inc.
7-13—**St. Louis.** Annual Automobile Show, St. Louis Automobile Dealers Association. New Mart Building.
10-13—**Trenton, N. J.** Annual Automobile Show, Trenton Automobile Trade Association.
13-19—**Indianapolis, Ind.** Indianapolis Automobile Trade Association Show. Earl G. Henry, Mgr.
13-20—**Kansas City, Mo.** Annual Automobile Show, Kansas City Motor Car Dealers' Association. American Royal Building.
13-20—**Los Angeles, Cal.** Automobile Salon Hotel Biltmore.
17-21—**Peoria, Ill.** Automobile Show.
22-March 5—**San Francisco, Cal.** Automobile Salon. Palace Hotel.

MARCH

3- 5—**Gary, Ind.** Automotive Trade Association, annual show. A. H. Travers, chairman.

HUDSON-ESSEX ANNOUNCES NEW CANADIAN PLANT

(Continued from Page 1)

Essex of Canada, Ltd., states that the Canadian organization and plant are direct results of the growing demand for Hudson and Essex cars in Canada. There are now nearly 600 sales outlets for these cars located in the principal cities and towns throughout Canada, and the fast-growing group of Hudson and Essex owners now represents in excess of 15 per cent. of the registration of cars in their price group.

Officers of the Hudson-Essex of Canada, Ltd., will be as follows: A. E. Barit, president; Max F. Wollering, vice-president; Chester G. Abbott, vice-president; A. Hood, secretary and treasurer. These officers, together with William J. McAneeny, Roy D. Chapin and C. D. Sterling, will form the directorate, with Mr. McAneeny as chairman of the board.

LOS ANGELES SHOW DRAWINGS COMPLETED

Los Angeles, Jan. 1.—With the drawing for display space completed, construction work is now under way at Wilshire Boulevard and Fairfax Avenue on the huge tent that will house the nineteenth annual automobile show of the Los Angeles Motor Car Dealers' Association.

The show will open Saturday, January 9, and continue until the evening of Sunday, January 16, according to Reeve Gartzmann, Oakland-Pontiac distributor and chairman of the show committee. Burt Roberts, executive secretary of the association, will be show manager, as in previous years. Other committee members are Guy Tucker, George Pelton, A. W. Kraussman and C. S. Brokaw.

Thirty lines of passenger cars will be displayed, while three lines of commercial cars and trucks will have space. In addition, twenty-five accessory firms will display their products, and several makes of airplanes will augment the ground transportation displays. Floor space aggregating 120,000 square feet will be devoted to the exhibits.

25 ROCHESTER DEALERS TO EXHIBIT AT SHOW

Rochester, N. Y., Jan. 1.—Dates of the twenty-fourth annual Rochester Automobile Show have been set for January 18 to 23 by the Rochester Automobile Dealers' Association; headed by President R. S. Cunningham. Arthur C. Lohman, vice-president of the association, will act as show manager.

Twenty-five dealers will exhibit twenty-seven makes of cars. Two buildings have been leased for the show at Edgerton Exposition Park.

Other officers of the association include: Treasurer, James J. Williams; directors, C. W. Fields, Charles P. Gallagher, E. J. Horton and Edward Schoen.

DECEMBER OUTPUT NEAR 110,000 UNITS, SURVEY INDICATES

(Continued from Page 1)

will go depends altogether on operations in the Ford plants, about which there is great uncertainty.

As has been widely noted, production operations by the Ford Motor Company were held up and just what the output of this organization was during December is almost impossible to arrive at until official figures are included in the estimate of the National Automobile Chamber of Commerce.

Buick has announced its December production record as 11,629 units. Chevrolet has not yet made an official announcement, but production ran above 50,000 units.

The December total compares with 70,114 vehicles turned out in November, that being the revised figure officially announced by the Department of Commerce in Washington. Production in December, 1930, totaled 161,323 vehicle units, but in December, 1929, the output of the industry amounted to only 125,502 units. It is possible that December this year may make a very good showing in comparison with 1929, depending on the as yet unknown factors in the month's production.

REUTER SEES INDUSTRY LEADING COUNTRY ON WAY TO RECOVERY

(Continued from Page 1)

which means automobiles are being worn out. The industry has made remarkable strides along engineering and style improvements and cars produced in 1928 are obsolete when compared with the new offerings and values.

"Consequently, we are justified in being optimistic regarding the outlook for the coming year.

"As regards our own picture, during the past year we have more than maintained our position in the industry. Our new products I am sure will meet with enthusiastic acceptance by the public. Our dealer organization is in a most optimistic frame of mind.

"Two and one-half years of industrial recession back of us, so we know we are that much closer to a turn in conditions and I am hopeful that the automotive industry with its wide ramifications will lead the way to improved conditions."

GOODYEAR ADDS MEN AT GADSON, ALA., PLANT

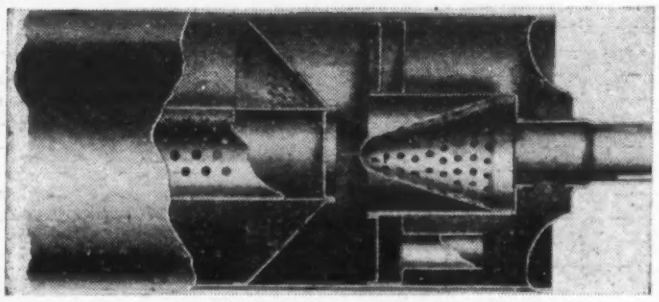
Gadson, Ala., Jan. 1.—The Goodyear Tire and Rubber Company recently shipped 22,000 tires in one day to break all previous shipping records. The plant here will begin operating January 4 on a five-day, eight-hour basis, affording employment to 1,000 employees. The new production schedule calls for 4,000 to 5,000 tires daily.

New Cadilac-La Salles Offer Many Innovations

(Continued from Page 3)

is used. All wheels are demountable at the hub. Wood, wire and disc wheels can be had for the same hub, and they will fit the same wheel carrier. Five wire wheels are standard, but wood or disc may be had at additional cost.

The eight-cylinder models are now equipped with the same electric furnace cast molybdenum iron brake drums used on the twelve and sixteen. The service brake is a mechanical unit, operating on all four wheels. The brake mechanism is connected to the frame by cable.



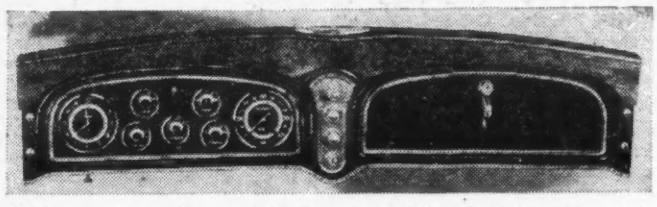
NEW muffler design used in Cadillac-La Salle models

The frame has been increased in depth by an inch, making it 9 inches. There are five cross members, three of the box type, one a Z section, and the other a curved plate.

The springs are newly designed and a new shackle has been added. Both front and rear springs are a quarter of an inch wider than last year. The front springs are 39 by 2¼ and the rear springs 58 by 2¼. Both are semi-elliptic, and metal covers packed with petrolatum inclose the springs.

The new spring shackle comprises threaded pins and bushings. The pins are prevented from turning by being clamped in place at their outer ends. This type of shackle, it is claimed, eliminates the chance of frozen shackle bolts or bolts taken up too tight. The shackle bushing is hardened steel.

The full-range ride regulator is designed to give a wider range of shock absorber control. Operation of this control is accomplished by moving a small lever, placed at the left of the steering column. Lifting or lowering this lever changes the adjustment of the shock absorbers by regulating the shock absorber valve spring pressure for both compression and rebound. There are five positions in which the lever can be placed, covering almost any range of driving conditions. A gauge on the instrument board shows the driver what setting is being used. A series of rod connections, similar to the brake hook-up, provides the means of making the adjustments.



Dials are gathered on left of the new Cadillac-La Salle instrument board

The new Cadillac lighting system is technically known as a four-beam symmetrical system, the four beams being of irregular or non-symmetrical road pattern. These headlights are designed to serve equally well for country driving, country passing, city driving, city passing and parking.

A new three-filament bulb is used in this lighting system, the filaments being, respectively, 21, 21 and 32 candle power, the latter filament being at the top in the left-hand lamp and at the bottom of the right lamp. Illumination of the right-hand side of the road is from the left lamp, while the right lamp illuminates the full width of the road.

Three filaments are lighted for country driving, flooding the road with a brilliant light. This maximum illumination is produced by the use of the 21 c. p. left hand intermediate filament, the 21 c. p. righ hand intermediate filament and the 32 c. p. lower filament in the right hand lamp. This latter filament has a wider and higher beam pattern than the corresponding filament in the left hand lamp, due to its lower position.

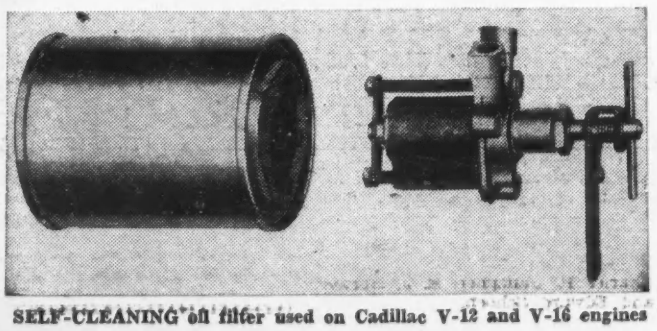
The country passing beam is a depressed beam concentrating the major portion of the road pattern to the right, and is produced by use of the intermediate filaments of 21 c. p. in each lamp, plus the upper 32 c. p. filament in the left lamp, which throws a strong beam down to the right.

The city driving beam is produced by the 21 c. p. center filaments as in conventional twin beam lamps in the upper beam position. The city passing light is the same as the country passing beam, except that the 21 c. p. center filament in the left hand lamp is not lighted.

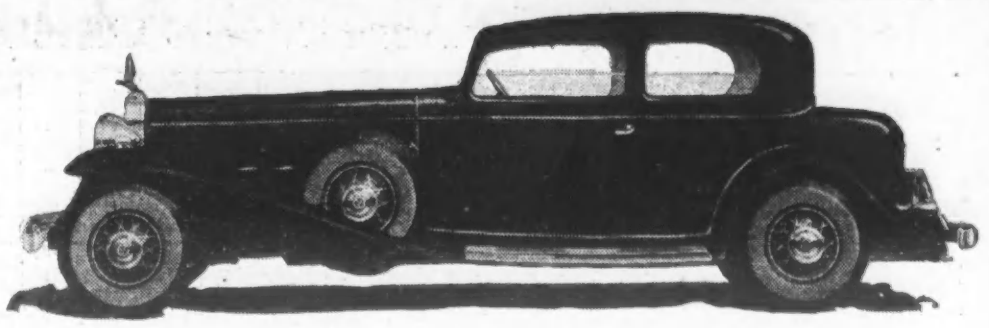
Tire sizes for the La Salle and Cadillac Eight models are 7.00 by 17. The tread has been widened in front from 57¼ to 59⅞, and in the rear from 59½ to 61 inches. The wheelbases of the La Salle are 130 and 136 inches. The Cadillac Eight has wheelbases of 134 and 140 inches.

The engine of the V-12 continues the bore and stroke of 3⅛ by 4, giving a cubic inch displacement of 368. The taxable horsepower is 46.9 and the engine develops 135 horsepower at 3,400 r. p. m. Six point suspension with rubber blocks is used. Molybdenum cast iron pistons, tin plated, are also employed in the twelve. The compression ratio is 5.30 to 1, with 5.08 to 1 as an option.

The profile of the cams on the twelve-cylinder cam shaft has also been altered to give quieter valve action. In addition, the V-12 has automatic valve silencers.



SELF-CLEANING oil filter used on Cadillac V-12 and V-16 engines



NEW Town coupe, by Fleetwood, available on V-8, 140-inch wheel base; V-12, 140-inch wheel base, and V-16, 149-inch wheel base. Chassis by Cadillac

The new rolled bronze wrist pin bushing is used in the V-12 connecting rod, the same as in the V-8, but the diameter has been increased from ¾ to ⅞ inches.

A new carburetor, distinct from the one used on the V-8, is fitted on the V-12. In fact, there are two, for the V-12 uses a separate carburetor for each cylinder block.

This new carburetor is of the expanding air valve type having a variable air opening around a variable fuel orifice. The throttle is automatically opened with starting adjustment, and aspirated fuel is introduced above the throttle. The carburetor proportions fuel properly, supplying extra fuel at open throttle for maximum power, and allowing maximum economy at part throttle. Overflow from the carburetor is drained to the ground. Combination air cleaner and intake silencer muffles air flow. The V-12's new gas tank of thirty-gallon capacity is eight gallons larger than the one used last year.

Improvements have been made in the cooling system. A new radiator, of similar type to that on the V-8, features larger air passages through the core, and also a ring shroud for the fan. The fan remains the same diameter, but its speed has been stepped up from 80 to 90 per cent. of engine speed.

The V-12 is equipped with a new oil filter, which is automatically cleaned every time the starter pedal is depressed. After the oil enters the filter it passes through a series of small discs which remove foreign matter. This residue is cleaned off the discs each time the starter is used by a mechanism which turns the discs against a stationary scraper. The cleaning mechanism is actuated by a handle connected through a ratchet to the starter pedal.

To supply the extra current required for the lights, a new Delco battery—160 ampere hour, 21 plates—is used. It supplants the 130 ampere, 15-plate type. The new axle ratios of the V-12 are 4.60 and 4.80 to 1.

The power plant of the Cadillac V-16 has a bore and stroke of 3 by 4, as last year. The piston displacement is 452 cubic inches. The taxable horse power is 57.5, and the engine develops 165 horse power at 3,400 r. p. m. Six-point suspension is used, with rubber mountings. Standard compression ratio is 5.36 to 1, with an option of 5 to 1 at no additional cost.

The diameter of the clutch of the V-16 has been increased to 11 inches, giving a friction area of 247.4 square inches, as compared with 181.6 square inches on the earlier V-16.

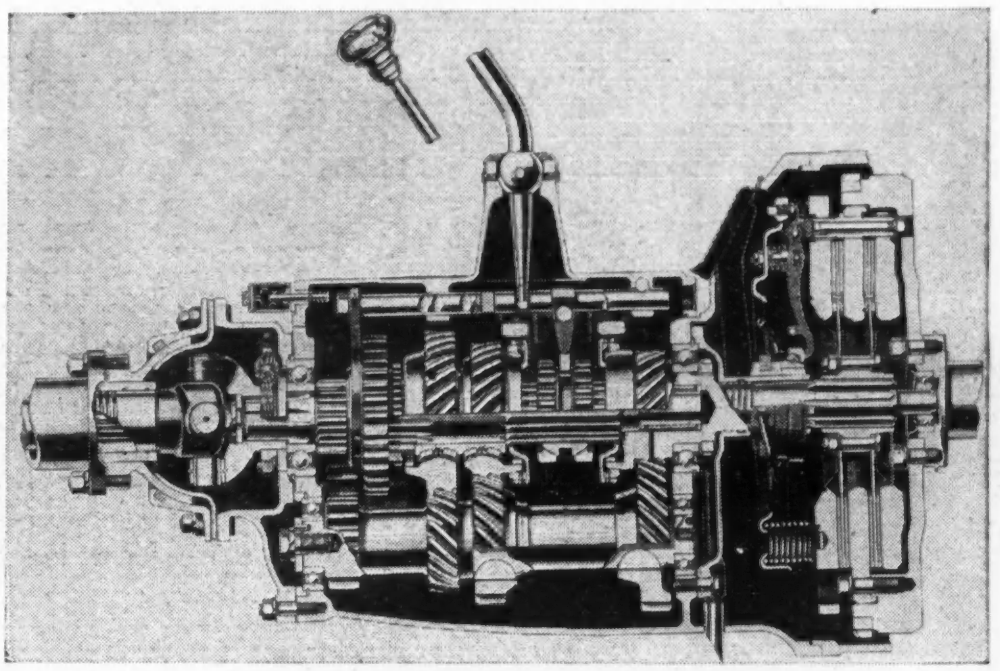
The battery used on the V-16 is a Delco, 90 ampere hour, 25-plate unit, which replaces a 130 ampere, 21-plate job formerly used.

The frame of the V-16 is 10 inches deep, 1 inch more than the other Cadillac lines. Axle ratios are 4.31 and 4.64 to 1.

As has been noted before, the V-12 and V-16 carry the syncromesh transmission, ride regulator, free-wheeling unit, five-beam headlight control, compression-type spring hackles, cast molybdenum brakes and other new features of design previously described.

A wide range of body styles is offered in the Cadillac-La Salle lines this year. On the La Salle, seven Fisher bodies are offered. The Cadillac V-8 presents seven Fleetwood bodies and thirteen bodies by Fisher. On the Cadillac V-12 there are seven Fleetwoods and thirteen Fisher bodies and the Cadillac V-16 offers seven Fleetwood and eight Fisher bodies.

In addition to the above standard bodies a wide selection of custom built Fleetwood bodies is available.



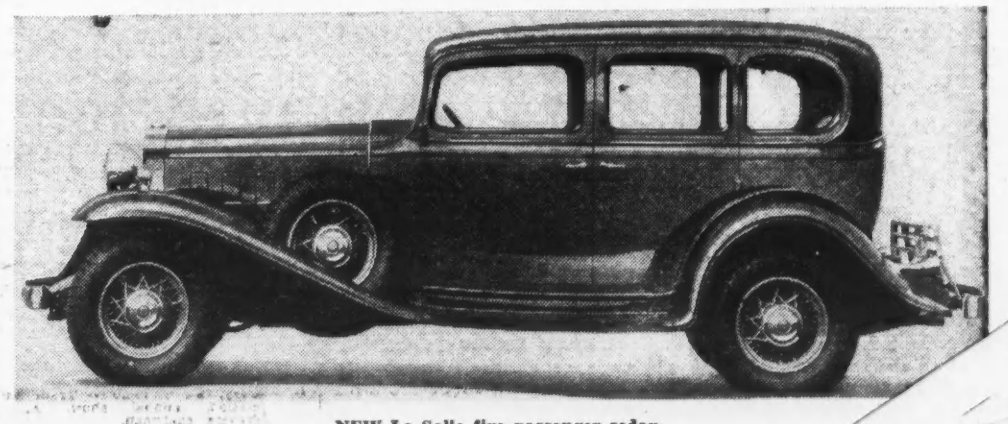
NEW Cadillac-La Salle silent syncromesh transmission

Many changes are to be noted on the new bodies. The seat pan has been dropped in the rear compartment and all bodies have one inch more headroom as well as one inch thicker rear cushions. The distance from the dash to the front seat or partition has been increased, giving more leg room in front and more room in back of the steering wheel.

A new radiator, flaring at the top; a new grille, new lamps of streamline contour, new windshield, sweeping fender and roof lines are all noted.

Overall height is reduced one to three inches, intensifying the streamline effect of the cars.

A triple insulated dash is fitted to shield car occupants from engine heat and sound-proofed side panels help quietness. Ventilation is secured through adjustable windows, a cowl ventilator of generous size, and the VV windshield.



NEW La Salle five-passenger sedan

NEW PASSENGER CAR REGISTRATIONS FOR FIRST

Name of Car	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Mass'setts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska
Auburn	76	35	9	3271	246	619	31	263	111	47	2835	992	297	127	172	92	122	333	1501	1034	398	6	737	54	107
Austin	16	10	3	555	34	18	8	115	26	14	155	46	36	72	33	8	4	12	79	94	37	5	77	12	33
Buick	543	316	215	7196	1028	2080	341	782	938	173	4857	1806	1110	848	476	359	791	1071	4970	3770	1437	201	2041	326	741
Cadillac	27	17	30	1121	55	348	43	68	73	2	904	156	80	52	33	31	69	86	575	623	112	3	183	10	28
Chevrolet	5856	1607	3908	32550	5812	7819	1499	8106	9232	1869	30854	15544	16056	10621	9329	6426	3816	10450	19889	24316	16350	4215	21410	2576	9363
Chrysler	366	83	213	3337	377	994	200	608	412	116	3152	1232	828	337	788	342	321	634	2144	2038	1247	165	1033	258	435
Cord	5	1	1	81	16	15		20	13	4	211	80	14	14	11	12	2	15	41	49	17	1	48	4	8
De Soto	150	103	71	2866	100	847	29	129	165	98	2015	1495	304	196	302	250	130	250	597	1267	370	39	613	139	112
*De Vaux	5	26	1	1094	54	98	5	24	23	42	227	61	128	11	43	27	37	6	158	440	41		36	33	22
Dodge	290	148	394	3779	562	1124	33	349	569	193	3972	1581	1280	683	919	497	423	491	2345	2746	931	133	1615	215	529
Durant	2	4	16	972	207	78	64	41	13	50	305	129	286	99	97	11	41	129	256	345	166	2	255	77	66
Essex	89	49	41	1458	351	922	94	480	241	53	2305	1367	933	640	548	169	865	638	3782	3137	784	43	997	155	247
Ford	5042	1763	3417	41587	4793	6872	1528	7923	9066	1698	31600	13324	11796	7434	7657	5622	3976	7560	25786	28930	11432	3541	15788	2289	7975
Franklin	7	3	2	240	11	111	9	58	34	6	230	47	14	17	10	16	36	62	316	13	16	2	50	23	9
Graham	73	6	106	1608	213	450	9	369	171	68	1200	439	268	163	108	86	152	292	658	888	514	38	593	34	164
Hudson	44	44	15	1241	249	459	45	299	162	46	1037	568	469	381	182	99	310	251	1320	1315	444	23	345	107	124
Hupmobile	94	38	21	1184	89	375	12	129	239	13	1211	417	234	94	222	135	102	279	950	605	556	71	480	54	118
La Salle	22	7	24	517	39	197	36	41	50		703	89	51	32	27	29	58	64	572	270	79	4	141	15	14
Lincoln	6	5	4	349	15	55	11	32	30	3	344	54	35	15	24	22	11	33	191	185	44	5	87	3	21
Marmon	45	5		194	68	102	4	86	41	1	365	362	58	66	117	44	38	32	207	227	48	5	359	35	34
Nash	131	164	117	2795	376	854	72	275	298	114	2793	647	573	370	191	442	445	537	2692	786	661	205	1010	152	240
Oakland	27	31	12	887	130	416	39	88	65	29	900	283	193	149	96	29	184	252	576	635	244	8	405	54	62
Oldsmobile	93	120	68	1925	269	778	126	241	369	68	4143	1688	1080	437	211	200	426	405	2377	3469	1244	43	1329	132	444
Packard	57	32	11	1209	76	489	80	119	82	10	1430	208	143	61	104	64	118	230	970	617	335	14	310	10	65
Peerless	1			59	7	3	1				199	8	3	12	3	4	2	75	87	27	5		23	1	3
Pierce-Arrow	3	3	3	375	37	142	7	31	47		300	44	9	19	22	28	10	53	401	56	60	3	169	6	6
Plymouth	792	215	509	5449	751	1372	166	1087	694	269	5064	2990	1905	970	1584	543	791	1207	3683	5966	3020	195	2674	367	1165
Pontiac	292	77	216	3070	599	1719	264	858	582	111	5173	2189	2060	1319	654	400	934	1388	3905	3987	1988	178	2277	364	816
Reo	32	6	21	516	50	173	3	80	45	25	405	122	91	90	74	20	66	98	394	433	157	3	153	47	37
Studebaker	254	151	78	4946	411	839	55	282	512	127	3166	1384	719	513	366	359	413	578	2167	1085	973	178	980	169	575
Stutz		1	1	25	8	3		1	1	1	74	23	3	7	4	2	4	3	4		3		16		
Whippet	39	3	53	126	109	9	4	16	36	16	172	319	173	101	160	4	17	22	17	362	92	15	476	29	126
Willys	259	54	57	1735	472	399	65	222	151	116	2358	1313	1439	700	703	123	314	442	1083	1210	1394	75	1734	194	725
Willys-Knight	24	13	9	694	51	104	17	38	24	17	479	118	111	78	92	28	41	81	394	197	168	14	215	27	111
Miscellaneous			8	161	12	16		1	4		302	70	14	1	5	9	1	10	22	11	187		154	2	34
Totals	14762	5140	9654	129172	17677	30899	4900	23261	24519	5399	115440	51195	42793	26729	25367	16532	15070	28069	85109	91133	45554	9433	58813	7973	24559

*Eight months' report.

NEW PASSENGER CAR REGISTRATIONS FOR FIRST

Name of Car	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska
Auburn	19	9	17	839	72	280	37	82	45	12	814	364	182	37	86	46	29	80	495	155	94	3	229	33	51
*Austin	25	16	15	535	47	67	12	113	35	18	142	94	88	91	50	39	22	22	153	186	62	16	107	4	44
Buick	978	499	454	8962	1349	2659	469	1185	987	371	7696	2366	1806	1613	680	663	910	1626	5486	5577	1799	640	2769	363	1245
Cadillac	39	12	47	1359	50	380	67	101	70	5	817	178	87	48	50	49	90	99	664	798	92	16	210	17	30
Chevrolet	7626	2020	5911	32471	6860	7154	1568	7715	7898	2952	34254	15682	22921	13037	9288	7186	3508	10063	16802	25690	17369	6944	23991	3199	12206
Chrysler	503	114	447	4405	485	1314	207	639	346	175	3933	1278	1087	575	757	496	490	774	2568	1748	1435	421	1218	253	685
Cord	2	3	4	255	11	25	4	35	12	2	278	88	19	8	12	5	4	9	71	59	16		37	12	13
De Soto	247	172	196	3714	251	1056	48	222	203	165	2763	1294	342	408	384	388	257	231	924	1259	437	196	726	189	206
Dodge	519	239	593	4767	733	1468	42	415	520	311	4161	1757	1762	1080	891	784	518	561	3191	2207	1020	329	1814	315	976
Durant	21	111	104	3308	488	199	124	75	108	217	868	356	752	215	228	37	183	225	559	759	508	45	701	149	241
Essex	337	103	185	3092	538	1612	153	613	201	160	3617	2074	1300	922	870	295	1102	867	4353	3892	1128	116	1890	274	468
Ford	11039	3352	9308	75030	9966	12638	2968	13521	13642	4147	62471	27681	29006	17802	14637	11292	5788	13312	40460	66783	27529	9678	33567	4238	17054
Franklin	7	11	10	621	32	243	18	80	71	11	654	77	38	21	58	64	53	96	487	130	20	3	143	46	19
Gardner				96	15	6					183	11	1	4	4	20	3		49	2	21		108		11
Graham	236	114	145	2614	395	722	15	492	223	128	1881	703	563	266	219	211	153	459	1092	1363	783	96	1013	88	268
Hudson	167	71	63	2025	291	726	76	372	189	84	1788	947	629	564	264	179	348	349	1818	1972	561	65	609	161	158
Hupmobile	181	102	59	1660	206	647	56	169	204	33	1973	486	412	211	262	187	141	348	1288	870	549	100	685	108	224
Jordan			1	17	4	50	2	12			52	27	1		8		3	14	52	55			14		
La Salle	79	21	66	1065	86	401	61	106	86	4	1049	145	85	44	51	48	85	129	801	556	169	20	266	25	30
Lincoln	25	9	18	428	18	72	12	46	36	5	495	78	62	30	37	24	21	37	209	177	54	16	95	6	38
Marmon	76	51	22	670	177	252	11	147	71	13	833	722	227	116	165	99	80	89	587	478	167	33	339	99	85
Nash	169	217	210	3668	614	1059	85	292	192	165	3505	937	936	660	280	688	534	593	3012	1089	874	384	1309	273	376
Oakland	50	72	60	1514	185	590	75	195	89	69	1409	537	378	322	159	140	208	304	808	1103	526	31	632	113	152
Oldsmobile	166	168	93	2235	318	730	79	224	324	108	3698	1736	1325	507	261	220	398	532	1809	3168	1003	78	1766	132	670
Packard	119	64	26	2423	153	845	133	222	131	20	2353	400	265	115	157	126	187	343	1905	1203	546	31	553	18	121
Peerless	1	18		216	12	61	1	3			377	63	24	52	21	22	37	54	286	72	25		84	3	12
Pierce-Arrow	10	7	19	546	51	211	13	42	33		382	69	31	30	31	24	31	85	576	108	93	8	216	12	9
Plymouth	685	157	580	2204	629	783	146	526	405	262	3886	1969	2154	1063	1160	441	754	712	2028	3073	2570	178	1968	358	1379
Pontiac	249	149	257	3356	604	1415	249	541	309	210	4725	2298	2045	1388	643	621	727	1101	3027	3215	2131	218	2253	305	890
Reo	48	6	20	916	67	409	5	121	44	31	618	171	144	123	150	34	85	131	722	825	192	31	219	58	52
Studebaker	352	397	140	6228	447	1239	84	186	454	168	4301	1741	1025	563	499	338	520	738	2583	1775	1244	200	1025	234	737
Stutz		5	1	52	18	24		1	2	2	150	27	11	24	11	6	3	4	42	4	5		38		3
Viking	7	12	6	176	19	34	7	17	37	9	248	94	37	22	11	13	5	13	117	238	51		62	9	36
Whippet	195	54	77	677	276	150	31	139	81	102	937	642	859	417	400	70	119	241	397	592	807	92	1281	164	557
Willys	149	118	48	1141	425	371	65	175	153	84	1884	947	1364	707	517	134	320	349	971	1048	1228	51	1303	198	635
Willys-Knight	45	53	33	1236	168	238	14	63	39	19	865	176	201	186	134	84	123	138	810	256	296	28	355	72	181
Miscellaneous	5		2	384	5	34	5	3	10	1	340	37	31	7	11	6	8	65	50	46	27		240	6	17
Totals	24376	8526	19237	174905	26065	40164	6942	28890	27250	10063	160400	68252	72200	43278	33446	25079	17847	34796	101752	132531	65431	20067	83835	11534	39879

*Six months' report.

IN LARGER QUARTERS

Columbus, O., Jan. 1 (UTPS).—The Ray W. Bunting Company, county distributor for the Studebaker line, has moved salesrooms and service station from 194 East Long St. to 327 East Broad St. The new location gives additional space in both the sales and service departments.

FRED SEBLING RETURNS

Akron, O., Jan. 1 (UTPS).—Fred Sebling, formerly district manager for the Chevrolet Motor Company in Akron territory, has returned to that position here, succeeding W. H. Hubbard, who held the position for about a year.

SMITH TRACTOR LEASES BUILDING WITH SIDING

Irvington, N. J., Jan. 1.—The one-story reinforced concrete building at 212 Coit St., has been leased for a term of years to the Smith Tractor and Equipment Company, northern New Jersey dealer for the Caterpillar Tractor Company. The property is 200x250, and is served with a siding from the Lehigh Valley Railroad. E. H. Smith and F. C. Smith, president and vice-president, respectively, represented the Smith Company at the signing of the lease.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

ELEVEN MONTHS OF 1931 BY MAKES AND STATES

Name of Car	Nevada	N. Hampshire	New Jersey	New Mexico	New York	No. Carolina	No. Dakota	Ohio	Oklahoma	Oregon	Penn'vania	Rhode Island	So. Carolina	So. Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Dist. of Col.	Totals
Auburn	41	88	1805	4	5654	182	30	2133	111	129	2655	296	58	29	166	199	53	86	203	203	244	725	19	314	28,942
Austin	3	5	86	14	219	75	2	80	45	22	230	26	35	27	39	227	6	1	69	56	35	56	2	18	2,880
Buick	108	444	5399	286	15288	725	215	3188	987	580	7395	804	340	255	574	2852	249	368	980	1004	437	1932	182	899	83,907
Cadillac	12	35	828	15	2575	51	3	504	95	45	888	96	10	4	43	212	25	23	70	69	46	160	10	104	10,652
Chevrolet	665	2673	21855	1370	57281	9492	2801	28745	9628	4430	39646	3372	5737	3272	8979	26920	1888	1490	13209	5102	5400	14295	1316	6419	555,458
Chrysler	139	204	2917	87	8938	745	143	2907	417	388	5606	577	290	251	321	1567	92	192	744	595	614	1097	115	445	51,051
Cord	4		60		251	7	1	98	10	11	77	6	3	2	2	29	3	1	9	16	13	38	1	10	1,335
DeSoto	40	102	838	22	3635	193	27	2333	119	279	2588	489	177	121	196	934	68	82	547	537	219	645	13	342	27,183
*De Vaux	12	22	269	1	409	53	22	146	11	79	339	16	17	44	70	17	50	6	15	84	45	206	6	1	4,582
Dodge	74	186	1993	136	5562	754	181	2493	971	339	4600	440	252	372	596	1776	182	199	853	546	701	1587	190	628	51,412
Durant	11	39	472	27	676	9	40	457	27	203	552	27	1	59	25	95	39	21	50	223	30	154	4	53	7,005
Essex	47	330	1971	14	5925	511	63	2859	132	140	3874	399	184	110	276	523	150	345	743	310	377	1236	134	362	41,403
Ford	703	2829	18861	1147	52677	9833	2232	28145	6648	4151	32000	3173	4913	2499	7205	21723	1667	1670	12200	5626	5057	10431	1044	7532	512,365
Franklin	4	44	238	3	814	15		221	29	42	462	53	6	1	22	62	16	6	7	38	14	37	2	31	3,509
Graham	27	91	784	10	2610	110	61	1069	89	315	2060	156	29	41	185	540	134	44	206	226	264	486	12	305	18,524
Hudson	31	134	975	21	2552	230	38	1038	123	112	1520	132	103	53	93	314	116	147	291	164	147	530	42	116	18,601
Hupmobile	16	86	941	2	2710	52	23	1066	77	47	1720	158	92	98	164	409	59	87	332	270	121	292	43	265	16,852
La Salle	13	29	479	6	1343	37	2	294	36	27	684	92	16	2	36	131	11	29	38	27	34	109	2	69	6,627
Lincoln	8	19	161	4	810	16	9	157	23	20	261	32	3	2	23	59	5	3	19	17	18	43	5	44	3,345
Marmon	5	23	390	7	703	19	22	507	16	29	695	9	2	6	15	121	14	3	81	20	50	105	3	67	5,455
Nash	26	308	2727	50	7225	116	105	1885	176	287	3348	324	52	100	206	709	155	188	312	293	272	1660	93	402	37,959
Oakland	5	92	800	16	1957	27	29	812	104	74	1227	101	33	45	51	163	33	77	208	150	150	453	19	192	12,612
Oldsmobile	31	345	2747	57	7252	328	119	3138	207	255	4038	168	136	442	319	570	85	182	397	591	331	1362	93	612	45,490
Packard	18	80	1187	7	3217	70	3	786	125	62	1602	104	34	23	87	281	29	54	185	105	111	258	5	289	15,566
Peerless		1	78		139			218			112	32			1	6		2	6	5		17		84	1,224
Pierce-Arrow	2	16	419	4	887	18		200	46	31	349	85	5	1	25	144	4	10	45	31	9	80	3	55	4,303
Plymouth	100	543	3067	152	10923	1239	313	6597	735	566	8992	678	492	499	994	2351	95	430	1327	1231	1188	2202	194	905	89,241
Pontiac	50	482	3131	72	8346	866	339	5002	886	415	5568	763	365	256	410	1653	151	268	1465	705	860	2329	80	837	70,719
Reo	5	30	343	7	1089	17	14	354	39	66	408	146	23	9	34	243	24	23	44	104	88	141	13	25	6,430
Studebaker	103	241	2570	47	7432	196	136	2324	284	365	3298	332	111	206	481	1432	135	102	461	763	267	1232	87	490	44,375
Stutz		1	23	1	94			29	1		8	2			4	5	2	1	3	5	1	2	1	1	368
Whippet	3	10	39	12	486	27	74	508	62	10	210	6	2	64	22	68	6	8	31	62	27	92	5	4	4,334
Willys	14	253	1212	54	4915	238	297	3542	206	133	3667	212	58	235	371	738	76	255	421	447	693	1186	58	208	36,826
Willys-Knight	5.	41	647	13	1789	20	23	774	55	45	782	59	5	19	33	119	15	20	56	139	74	156	10	68	8,112
Miscellaneous		1	51	1	231		2	165	45	2	183	2	1		6	18			1	3	1	49		30	1,816
Totals	2325	9827	80363	3669	226614	26271	7369	104774	22565	13699	141644	13367	13585	9147	22074	67210	5637	6423	35628	19767	17938	45383	3806	22226	1,830,463

ELEVEN MONTHS OF 1930 BY MAKES AND STATES

Name of Car	Nevada	N. Hampshire	New Jersey	New Mexico	New York	No. Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	So. Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Dist. of Col.	TOTALS
Auburn	34	64	837	14	2838	21	5	708	67	43	893	99	1	18	50	118	73	37	62	165	66	180	5	97	10,605
*Austin	11	14	209	1	401	44	12	188	68	82	387	21	38	15	88	192	15	11	56	65	21	59	4	38	4,042
Buick	219	580	6679	481	18748	1099	266	5134	2389	1001	10184	922	534	380	1208	5213	382	486	1298	1991	662	3189	230	980	117,497
Cadillac	5	45	803	8	2444	65	1	621	125	36	866	86	9	4	77	248	28	22	59	72	40	156	5	101	11,334
Chevrolet	614	2290	17587	2081	44761	8495	3895	31525	16993	4963	36698	2931	5731	5350	10450	35641	2408	1630	12625	6807	7180	17435	1192	3695	587,292
Chrysler	155	295	3144	123	8373	800	214	3053	740	402	6826	587	298	344	588	1895	174	303	848	985	607	1402	132	334	58975
Cord	3	3	69	1	341	3	3	101	20	5	109	14	1	4	15	27	13	10	14	20	11	34	2	10	1,817
De Soto	88	191	1225	98	3747	253	104	2439	400	322	3350	497	202	94	295	1797	168	90	455	750	333	763	40	184	34,163
Dodge	166	204	2349	168	5650	822	214	3191	1732	519	5520	512	271	511	903	2710	292	250	1012	763	953	1663	194	302	61,844
Durant	62	102	734	52	1562	71	157	1132	245	651	1759	91	26	289	121	701	280	55	228	931	175	627	27	125	20,784
Essex	109	353	2796	73	7612	587	183	4272	409	491	5306	427	230	281	556	874	301	398	831	871	749	1747	107	436	60661
Ford	1127	3980	34772	2875	90531	15669	5248	60226	21659	8842	69392	5195	8568	7192	16589	49606	4161	2943	18762	14553	10560	25592	1828	8675	1,025,454
Franklin	7	43	401	2	1483	43	6	584	88	82	721	61	13	11	48	174	32	19	55	104	57	120	8	44	7,219
Gardner	5	1	26		108		2	80	1	21	89	6			3	22		1		3	1	27			936
Graham	38	114	1195	42	3553	222	103	1762	303	388	3039	179	58	105	357	849	191	153	339	372	447	871	31	280	29,233
Hudson	92	135	1577	42	3879	324	69	1880	243	250	2687	196	150	132	217	434	124	159	304	388	268	891	46	173	29,136
Hupmobile	26	101	1339	3	3337	64	17	1493	218	178	2524	152	95	155	321	524	66	104	374	514	164	431	53	228	23,642
Jordan	1	5	88		293			100	2	3	102	2				23		1	3	15	4	19		10	983
La Salle	19	28	727	21	1831	60	7	494	123	48	989	107	25	9	107	252	19	49	87	67	59	103	6	83	10,856
Lincoln	5	11	174	4	952	35	3	228	49	29	283	34	9	6	40	114	8	6	35	27	16	47	3	44	4,210
Marmon	18	68	573	18	1797	63	86	875	90	97	1116	29	50	44	75	373	32	28	142	99	185	224	10	71	11,772
Nash	64	370	3216	73	8249	248	237	2530	492	310	4434	317	122	229	309	1021	224	258	391	473	465	2235	91	276	48,748
Oakland	11	86	1150	34	2802	119	94	1533	322	176	2073	129	73	109	134	554	68	108	313	258	295	806	22	213	21,203
Oldsmobile	66	240	2584	69	6682	249	183	3636	471	338	4380	268	123	647	367	866	141	1 63	339	728	420	1537	85	470	46,800
Packard	29	89	1986	23	5232	119	17	1571	303	128	2843	208	78	51	213	493	76	99	223	220	166	407	14	338	27,385
Peerless		14	303		509	4		589	8	1	433	67		1	4	48		17	52	31	10	77		163	3,775
Pierce-Arrow	2	25	574	3	1381	13		289	111	27	682	102	2	6	90	212	8	17	53	25	27	136	1	62	6,485
Plymouth	106	294	1619	124	5715	672	411	4593	928	464	6904	384	336	650	695	2358	110	409	900	1097	863	2174	134	352	62,362
Pontiac	49	289	2361	109	6813	625	382	4924	1387	537	5146	561	289	375	585	2414	218	242	1319	775	806	2668	70	572	66,442
Reo	3	126	483	7	1385	24	17	624	133	132	884	247	36	49	65	535	35	49	100	168	139	214	8	58	10743
Studebaker	99	236	2919	73	7748	183	219	2901	466	507	4316	313	138	341	695	1628	184	130	431	902	395	1682	72	387	54,183
Stutz		1	38	1	159		1	53	6	1	29	1			7	8	10		6	1	7	12	1	3	778
Viking	8	7	164	5	463	12	14	165	38	19	191	5	3	30	36	65	19	8	15	43	20	85	4	23	2,722
Whippet	19	57	385	49	1537	200	253	1523	563	83	1153	56	58	290	347	698	37	153	295	301	375	633	32	51	18504
Willys	29	168	1024	54	3706	183	274	2870	521	138	3113	222	35	312	336	954	40	150	453	466	561	1283	42	72	31,391
Willys-Knight	19	62	921	29	2408	37	55	1110	104	131	1188	167	6	48	85	324	15	56	137	307	146	230	18	86	13,502
Miscellaneous	1		89		441	2	5	102	27	12	287	7	1	2	27	72		5	25	3	4	94	1	79	2,629
Totals	3309	10691	97120	6760	259471	31430	12757	149099	51844	21457	190896	15201	17609	18084	36103	114037	9945	8619	42641	35360	27257	69946	4518	19115	2,530,014

UNION SERVICE STATIONS ADD TO FACILITIES

Seattle, Wash., Jan. 1.—Super-service facilities are being added to many stations of the recently formed Union Service Stations, Inc., which is a subsidiary of the Union Oil Company, operating some 750 gas and oil service stations along the West Coast. Firestone tires have been added for sale, and lubrication, battery and tire service added at many stations.

BUYS FOR CONSOLIDATION

Marshalltown, Ia., Jan. 1.—The Sieg Company, Davenport, operating the Crasco Marshall Company, automotive supplies, has purchased the Wieland Automotive Supply Company from Art Wieland and will consolidate both stores and stations in one unit at 108 South Center St.

OPEN NEW HEADQUARTERS

Los Angeles, Jan. 1.—The Johnston Piston and Ring Distributors, manufacturers and distributors of the Johnston check valve piston and ring assembly, have opened new headquarters at 513 West Washington Boulevard, Los Angeles. General sales as well as warehouse stock will be handled at this location. Production has started on the assembly for use in the Chevrolet Six.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Auburn New Twelve Has Dual Ratio Axle

(Continued from Page 1)

taxable horse power of 46.8, but develops 160-brake horse power at 3,400 r. p. m. The compression ratio is 5.5 and 5.75. Four-point suspension is used, with rubber mountings for the rear. A Lanchester vibration dampener is fitted.

Pistons are Bohnalite invar steel strut, with three compression and one oil ring. A single cam shaft is used to operate both sets of valves for the two banks, with the valves opposed and horizontal. Valves are of silicrome. Ignition is Delco-Remy. A gear pump forces oil to main, crank pin, piston pin, cam shaft and rocker-arm bearings and to the front end.

A Purolator is built into the crank case and has a manual cleaning feature to eliminate cartridge replacement. Two Stromberg carburetors of the down-draft type are placed on top of the engine. Fuel feed is by a Stewart-Warner pump.

The cooling system embodies a Fedders radiator of the cellular type. The fan belt is a 38-degree V-type. Pines automatic winter front is optional.

The steering gear of the Auburn twelve is a Ross unit, cam and roller. Particular attention has been devoted to making steering easy, without wheel backlash. Through the use of a larger worm, lower gear ratio, a longer cam lever arm and a kick shackle on the left front spring, this has been accomplished. All parts of the steering gear, it is stated, have been incased in size over the conventional dimensions. The low gear ratio, 22 to 1, is designed to make steering easier, without effecting the turning radius.

The kick shackle on the left front spring will be of particular interest. This is designed to keep the effect of wheel flight and road shocks from being passed on to the wheel apparatus. In this device the shocks are absorbed by a small spiral spring.

The double-faced clutch is a two-plate Long unit, with molded woven composition facing.

The transmission has a silent mesh, synchronized second speed and the L. G. S. free wheeling device, which provides free wheeling in all forward speeds.

A feature which will arouse general interest is the dual ratio rear axle, by means of which the driver is given a slection of two complete sets of gear ratios, merely by turning a control on the dash. This enables the driver to use a gear ratio best adapted to the driving conditions under which he is operating. For instance, in hilly or mountainous country or in sand or mud the driver selects the ratio that gives greater power at the rear wheels. In flat country he increases the speed of the rear wheels without increasing the speed of the engine.

In the "high" high speed, so to call it, the revolutions of the engine are reduced one-third, but the car speed remains the same and in the "low" high speed the car is given unusual acceleration characteristics.

Where driving conditions are good and high speed is desired, dual ratio provides a "high" high with a 33 1-3 per cent. reduction in engine speed. This it is pointed out reduces vibration, gives driving ease, economy in fuel and oil consumption and decrease in the wear of moving parts.

Mechanically the change in ratio is accomplished by means of a small planetary transmission within a flange on the ring gear. A dog type clutch operating on the axle drive shaft engages the planetary transmission. The shifting of the dogs is controlled by the clutch pedal after it is set in position by the control on the dash.

The minimum gear ratio of the "low" high speed is 4½ to 1, and is a constant ratio between ring gear and pinion and does not involve the planetary transmission, which merely revolves as an integral part of the ring gear. The maximum gear ratio or "high" high is developed through a connection with the planetary "step up" gearing which develops, between the engine and the rear axle, a ratio of 3 to 1. Thus, when the high high gear is operating, the engine turns one-third fewer revolutions per wheel revolution than when the power is transmitted direct from ring gear to axle. Corresponding conditions exist in the use of low, intermediate and reverse speeds.

With this ratio change unit, the driver, anticipating some condition of road or traffic, may turn his control to "low" high or another, as seems advisable. The actual change of ratio is delayed until the clutch is depressed, automatically operating the control mechanism. This procedure is necessary in making any ratio change.

The mechanical effort for changing the position of the sliding dogs on the axle shaft is supplied by a piston device employing vacuum from the intake manifold, eliminating the need for any effort on the part of the driver.

The brakes have been designed to take care of the high speeds of which the car is capable. The brakes are of the hydraulic type. The drums are 14 by 2 inches of composite cast iron and ribbed steel. The lining is $\frac{3}{16}$ inch thick.

Shock absorbers are adjustable to riding conditions by means of a small lever on the left of the dash.

Chassis lubrication is cared for by a Bijur system. The frame of the car employs the X-type cross member construction, which Auburn introduced last year. Side rails are $\frac{3}{16}$ by 8 by 3 inches.

The wheelbase of the Auburn twelve is 133 inches. The rear tread is 62 inches. Seventeen-inch wheels are used, in keeping with the Auburn trend toward lowness. Receding floor boards in the rear compartment, underslung front springs and the lowering of the rear seat into the chassis frame all contribute to keep the height of the car low without decreasing the headroom.

Particular attention has been given to the insulation of the chassis and body to reduce noise. Asbestos insulation has been used on the exhaust pipes, extending from the manifold to a point just below the cowl dash. The two mufflers are insulated with half-inch fire asbestos, and every contact point on the entire exhaust system where metal would touch metal has been fitted with insulation pads.

A special ply rubber pad has been developed to insulate the body from the frame where the body bolts pass through. Door panels are double insulated, the interior panel being coated with a sprayed deadening composition as well as the outer panel. This same type of composition is used on the floor boards, rear seat bottoms and body panels.

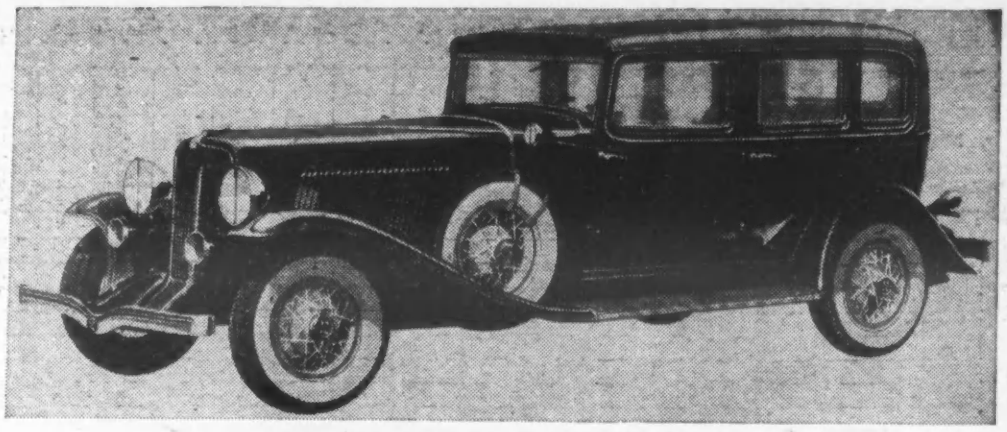
Engine noises have been minimized by the use of three-layer insulation on the dash of the car, one layer of fire asbestos, a second of wool felt and a third of composition board. This insulation, as well as minimizing noise, serves to keep an even temperature in the car.

Care has been used in the details of this Auburn twelve. A bronze bushing is used on the door handles instead of a felt washer. The custom type cloth roofs and quarters of the closed models are of sunsast Wexford materials. A new type of glass channel is used, which, it is claimed, allows the glass to move more easily and holds it tighter in place.

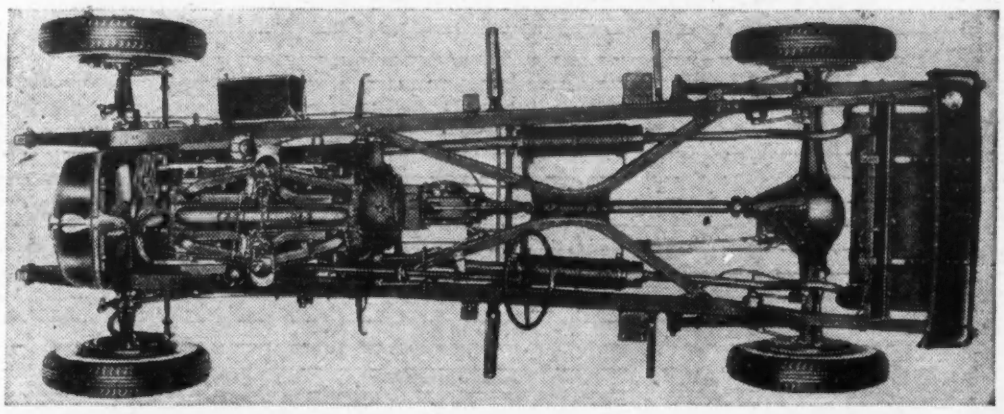
A wide variety of color schemes are available for these twelves. Wide body beads, extending from the tip of the radiator to the sides of the cowl and thence back around the rear of the body, lend themselves to the use of color combinations.

Two distinct lines are offered on this 12-160 chassis, the standard models and the custom line. While the standard models have free wheeling, silent and constant mesh gears, they do not include the dual ratio feature.

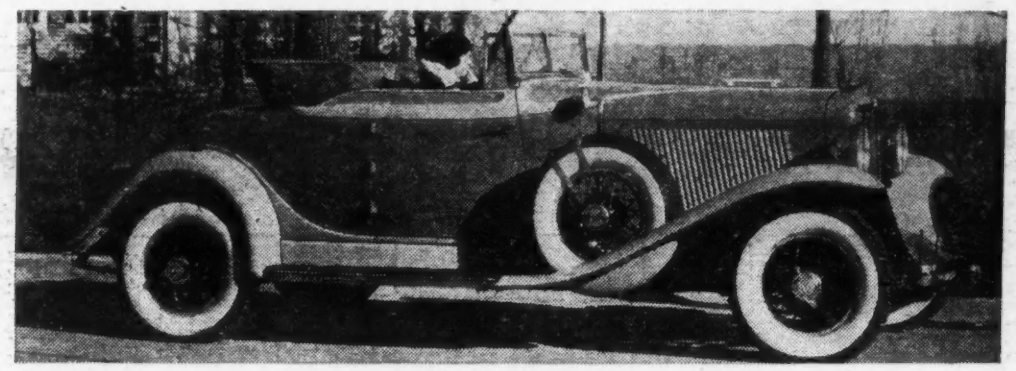
On the standard models a 17 by 6 tire is used, while the custom models have a 17 by 6.50 casing on wood wheels and a 17 by 7 tire on wire wheels. All tires are six ply. Six models are available in both standard and custom lines, as follows: Five-passenger sedan, five-passenger convertible phaeton sedan, five-passenger two-door brougham, two-passenger cabriolet with rumble seat, two-passenger business man's coupe and two-passenger speedster.



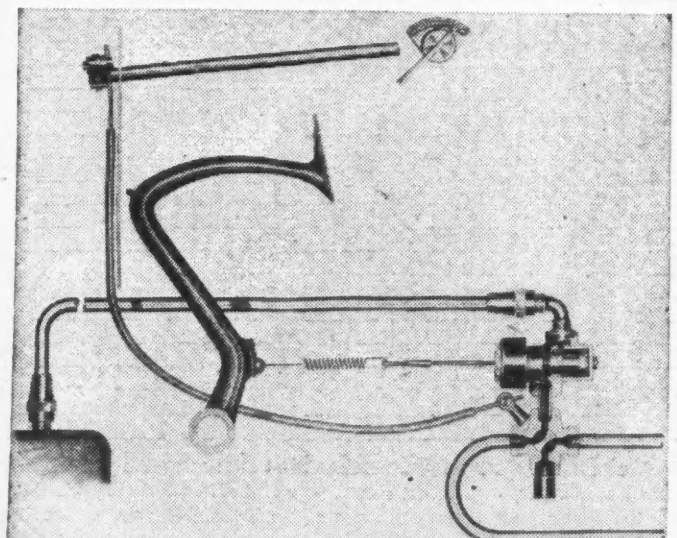
CUSTOM SEDAN in the new Auburn 12-160 series



A PLAN VIEW of the new 12-160 Auburn chassis shows the neat arrangement of component parts, twin mufflers and vacuum control of the dual rear axle ratio. The front end of the rear springs is mounted outboard



NEW AUBURN 8-100 cabriolet



A VIEW of the dual ratio control device is shown above. Vacuum is used as the propelling force in shifting the rear axle ratios

LYCOMING TWELVE IN THE AUBURN

Forty-five degree block-cast 3⅛x4¼, and with overhead valves, this new engine has a four-bearing crank shaft, a Link-Belt front end drive and a seven-bearing cam shaft. Chain width is 1½ inches, and main bearing sizes as follows: No. 1, 3x2 9-16; No. 2, 3x2; No. 3, 3x2; No. 4, 3x2⅜. Total crank shaft bearing area is 84.23 inches. A Lanchester damper is fitted.

Connecting rods are side by side, journals 2½ diameter by 1¼ wide. No shims are used. Wrist pins are .875 diameter by 2.596 fitting into diamond bore bronze alloy bushings. Bohn invar strut pistons have four rings of .125 width. Two of them are oil regulators and two compression type.

Cooling uses a belt-driven pump. Dole thermostat. Fan Belt ⅞-inch wide. Lubrication is by pressure to all bearings front end, cam rollers, etc. Nine-quart crank case capacity. Purolator fitted. Firing order is: 1L, 2R, 5L, 4R, 3L, 1R, 6L, 5R, 2L, 3R, 4L, 6R.

Carburetor is a down draft Stromberg fed by Stewart-Warner pump. Delco-Remy electrical equipment with semi-automatic advance, plugs metric, Packard cable.

The 8-100 series follows closely the lines of the 8-98 series of 1931. The chassis has a wheelbase of 127 inches, with 136-inch wheelbase for seven-passenger models. The engine is the Lycoming straight eight, which develops 100 horsepower at 3,400 r.p.m. Bohnalite invar strut pistons are used in this engine. Material in all valve stems has been improved and heat treated to provide longer life. Contours of the camshaft lobes have been redesigned to iliminate noise at high speed and to increase horsepower. Engine mounts of rubber have been introduced.

The L. G. S. free wheeling unit is used and constant mesh transmission is provided as last year. Startix automatic starting is fitted and a Bijur system takes care of chassis lubrication.

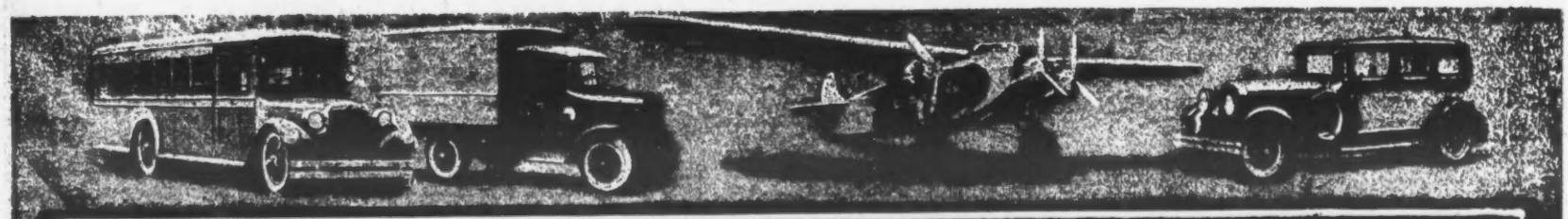
The dual ratio rear axle is supplied on the custom models of the 8-100 line and may be had at slight additional cost on the standard models. Its operation is, of course, the same as with the dual ratio axles on the 12-160.

The steering gear of the 8-100 is a Ross unit, cam and roller, and this has been increased in size to provide greater comfort and safety. The ratio has been raised frem 18 to 1 to 22 to 1. The worm and cam lever arm have been lengthened without increasing the turning radius. The kick shackle is used on the left front spring.

The frame embodies the X-type cross member used last year, with a spread of seventy-five inches.

Steeldraulic self-energizing brakes are used, and a new type of brake lining is employed to give greater efficiency and wearing quality.

Seven models are available in both standard and custom lines, as follows: Five and seven-passenger sedans; two-door five-passenger brougham; two-passenger business man's coupe; five-passenger convertible phaeton sedan; two-passenger cabriolet with rumble seat; two passenger speedster.

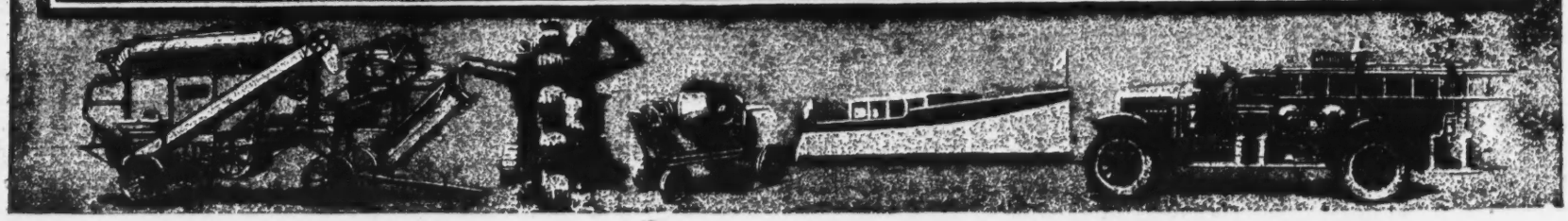


Nothing *Finer* Can Be Said of Any Motor Vehicle Than, It is -

POWERED BY LYCOMING

LYCOMING MOTORS

LYCOMING MANUFACTURING CO. WILLIAMSPORT, PENNSYLVANIA



BULLARD OFFERS 3 NEW MACHINES

(Continued from Page 3)

point. While the taper bearing cares for the side thrusts, the vertically adjustable ball bearing takes the vertical thrust, but also gives a firm support for the entire weight of the carrier and increases ease of rotation of carrier when indexing.

The work spindles, six or eight in number, are of heat-treated forged steel, each mounted on a pair of properly spaced, well lubricated, preloaded, anti-friction roller bearings. These anti-friction roller bearings are selected and installed to insure adequate provision for both vertical and horizontal thrusts.

Each spindle is provided with a drive gear of greater diameter than the work capacity of the machine, which permits an application of driving power appreciably in excess of cutting requirements to assure a smooth, even flow of delivered power at the point of machining operations.

The spindles of the type D Mult-Au-Matic are also equipped with an individual spindle brake mechanism, which, during index, brings to a stop all spindles with the design of insuring rapid, quiet re-engagement of gears which have specially rounded tooth form to additionally facilitate rapid and quiet meshing.

In addition to the foregoing features, the spindles are so designed that they will accommodate chucks or fixtures for manual operation, as well as being applicable to the use of mechanical power - operated chucking, which may readily be applied to type D Mult-Au-Matic if desired.

The five or seven feed works applying respectively to the six or eight-spindle Mult-Au-Matics differ from former feed works in several outstanding respects, most noteworthy of which is the replacement throughout of bronze bearings with properly lubricated anti-friction bearings. To further increase the operating and maintenance efficiency of these units, the former heavy construction throughout has been sufficiently increased to care for unforeseeen overloading and unusual conditions.

The prime importance of tool head function has had special attention, and the tool heads have been redesigned to exceed the demands of modern tooling. The new tool heads and the hardened ways upon which they slide have been materially strengthened and are massively built.

A system of automatic slide lubrication has been included as a part of the regular lubricating system.

Sufficient distance from the face of the tool slides to the center of the spindles has been allowed for heavy and rigid construction of tool blocks. A continuously driven gear pump delivers oil from the reservoir to the latest design of filters.

After filtration the oil is passed through the drive bracket and then properly distributed to the feed works, thence to the tool heads and all other moving parts of the machine. Great care is given to lubrication of the precision spindle bearings, and, since it is essential at this point to have the cleanest lubricant available, an independent line delivers the filtered oil directly to these anti-friction bearings.

As has been customary in preceding types of Mult-Au-Matics, the cutting compound system of the new type "D" is an integral part of the machine, and included in its design is a system of chip and water guards.

The type "C" Mult-Au-Matic is built in six and eight spindle models. Five or seven stations are for the machining operations in process, while simultaneously at the remaining station the work is being chucked. At the respective work stations there may be mounted, by choice, a variety of boring, drilling and reaming tools, in conjunction with a variety of facing and turning tools. These tools are set to meet the work conditions for each operation, and from a feed works unit receive their proper feeds and spindle speeds at each station through a combined system of cam and change gears, which actuates the main turret and tool heads. This arrangement, while simple in function, covers a wide and complete range of operating conditions, as required on the small classes of work coming within the capacity of the machine.

Through the combination of main head and tool column heads at each of the work stations, it is possible to approach the smaller work, for which this machine is designed, from different directions for concentrated operations at close quarters and still maintain in the retired position sufficient room for easy tool setting.

Such tools as core drills, reamers and boring bars are mounted directly on the main column, which provides a uniform feed at all work stations. Tool carrying slides are mounted on massive tool columns rigidly secured to the upper and lower sections of the machine on their outer diameters. This construction consolidates the entire machine into one solid, rigid unit.

As this Type "C" Mult-Au-Matic is primarily designed for fast work, it is necessary to facilitate chucking within the period allotted for machining operations, and therefore mechanical power operated chucks are included for production.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-100	——	127-136	Lyc	Dole	L	8	3 x4¾	268.6	5.26	28.8	98@3400	*Alum	5	Pur	No	Str	No
Auburn 12-160	——	†132	Lyc	Dole	O	12	3⅛x4¼	391.0	5.50	46.8	160@3400	*Alum	4	Pur	Ste	Str	—
Austin	$1130	75	Own	——	L	4	2.2x3	45.6	5.10	7.8	13@3000	Alum	2	—	—	Til	No
Buick 32-50	3170	114	Own	Bish-Bab	O	8	2⅛x4¼	230.4	4.65	27.61	78@3200	CI	5	AC	AC	Mar	AC
Buick 32-60	3795	118	Own	Bish-Bab	O	8	3⅛x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 32-80	4255	126	Own	Bish-Bab	O	8	3⅛x5	344.8	4.40	35.12	104@2900	CI	5	AC	AC	Mar	AC
Buick 32-90	4340	134	Own	Bish-Bab	O	8	3⅛x5	344.8	4.40	35.12	104@2900	CI	5	AC	AC	Mar	AC
Cadillac 355 B	——	134-140	Own	Har	L	8	3⅜x4⅛	353.0	5.38	36.4	115@3000	CI	3	AC	AC	Own	AC
Cadillac 370 B	——	134-140	Own	Har	O	12	3⅛x4	368.0	5.30	46.9	135@3400	CI	4	Cuno	AC	DL	AC
Cadillac 452 B	——	143-149	Own	Har	O	16	3 x4	452.0	5.36	57.5	165@3400	CI	5	Cuno	AC	DL	AC
Chevrolet	——	109	Own	No	O	6	3⅛x3¾	194	5.20	26.3	60@3000	CI	3	—	—	Car	AC
Chrysler 6	2850	*175⅞	Own	Yes	L	6	3¼x4⅜	217.8	5.35	25.35	80@3400	*Alum	4	—	AC	Sch	Yes
Chrysler 8 De L.	——	*187⅛	Own	Yes	L	8	3¼x4¼	282.1	5.20	33.80	100@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	Yes	L	8	3½x5	384.8	5.00	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169⅛	Own	Yes	H	6	3¼x4⅛	205.3	5.35	25.35	72@3400	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*176⅞	Own	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	Dole	L	6	3⅜x4	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Til	AC
Dodge Six	2820	*176½	Own	Yes	L	6	3¼x4¼	211.5	5.31	25.35	74@3400	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	*180½	Own	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 612	2820	112	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Til	AC
Essex Super Six	2750	**113	Own	——	†L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	——	L	4	3⅛x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham 6	3100	113	Own	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	AC
Graham Std. 6	3265	115	Own	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4100	134	Own	Yes	L	8	3 x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Graham, Bl-Str.	——	123	Own	Bish-Bab	L	8	3⅛x4	245.4	—	31.25	90@3400	*Alum	5	Yes	AC	DL	AC
Hudson Greater 8	3115	119–126	Own	——	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	——	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125–137	Own	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle 345 B	——	130-136	Own	Har	L	8	3⅜x4⅛	353.0	5.38	36.4	115@3000	CI	3	AC	AC	Own	AC
Lincoln	5300	145	Own	Ful	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Lincoln 12	——	145	Own	——	L	12	3¼x4½	448.0	5.25	50.7	150@3400	Alum	7	No	Str	Str	Ac
Marmon 70	2823	112¾	Own	Pines	L	8	2⅛x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	4375	130–136	Own	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	5360	145	Own	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	Flo	AC	Str	AC
Nash 960	2800	114¼	Own	*	L	6	3⅛x4⅜	201.3	5.10	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	Bish-Bab	L	8	2⅞x4⅜	227.2	5.10	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124–133	Own	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	Yes	H	8	3⅛x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113½	Own	——	L	6	3⅜x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½–136½	Own	Yes	L	8	3⅛x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛–147⅛	Own	Yes	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 54	——	137–142	Own	Pines	L	8	3½x4¾	366	5.00	39.2	125@3000	*Alum	9	Pur	Ste	Str	AC
Pierce-Arrow 52	——	142–147	Own	Pines	L	12	3⅜x4	429	5.00	54.6	150@3200	*Alum	7	Pur	Ste	Str	AC
Pierce-Arrow 53	——	137–142	Own	Pines	L	12	3¼x4	398	5.00	50.7	140@3200	*Alum	7	Pur	Ste	Str	AC
Plymouth	2710	109	Own	——	L	4	3⅛x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	Yes	L	6	3⅛x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	*Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	Yes	L	6	3⅜x5	268.3	5.30	27.34	85@3200	Alum	7	Han	V S	Sch	Un
Reo 8-25	4050	125	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	*Alum	5	Han	V S	Sch	Un
Rockne 6-65	——	110	Own	Dole	L	6	3⅛x4⅛	189.8	5.20	23.4	65@3200	CI	4	—	Ste	Str	No
Rockne 6-75	——	114	Own	Dole	L	6	3¼x4⅛	205.3	5.10	25.4	72@3200	CI	4	—	AC	Str	No
Studebaker 6-55	——	117	Own	Dole	L	6	3¼x4⅝	230.0	5.10	25.4	80@3200	CI	4	No	Ste	Str	No
Studebaker Dict. 62	——	117	Own	Dole	L	8	3⅛x3¾	221.0	5.10	30.0	85@3200	CI	9	Pur	Ste	Str	AC
Studebaker Com. 71	——	125	Own	Dole	L	8	3⅛x4¼	250.4	5.15	30.0	101@3200	*Alum	9	Pur	Ste	Str	AC
Studebaker Pres. 91	——	135	Own	Dole	L	8	3½x4⅜	337.0	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Stutz LA	4320	127½	Own	——	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	——	O	8	3⅜x4½	322	5.50	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	——	O	8	3⅜x4½	322	5.50	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	161@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110–113	Own	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	Flo	AC	Til	Til
Willys 8-80 D	3131	121	Own	Var	L	8	3⅛x4	245.4	5.26	31.25	80@3200	CI	5	Flo	AC	Til	Til
Willys-Knt. 66-D	3400	121	Own	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Flo	Til	Til	Til
Willys-Knight 95	3122	113	Own	Pines	K	6	2⅛x4⅜	177.9	5.55	20.7	60@3400	*Alum	7	*	AC	Til	AC

TAX ON GAS PUMPS CUT IN NEW JERSEY

Trenton, N. J., Jan. 1.—Statewide reduction of tax assessments on gasoline pumps was ordered today by the State Board of Tax Appeal. The reduced rates provide assessment of $125 for electrically operated pumps and $100 for hand pumps. The apparatus formerly was assessed for approximately $150, without discrimination as to method of operation. The action resulted from appeals taken by gasoline distributing concerns from assessments in more than 300 cases.

NEW PONTIAC LINE SHOW AT OAKLAND FACTORY LUNCHEON

(Continued From Page 1)

tended to members of all luncheon clubs and civic associations.

The preview was held in the State Theater, with I. J. Reuter, president of the Oakland Motor Car Company, and W. A. Blees, vice-president in charge of sales, outlining briefly prospects for 1932 and exhibiting one of the new models. From the theater the guests will go to the armory, where a complete line of the new Pontiac Six and Pontiac V-8's will be shown.

A luncheon for automobile editors and newspaper men was held at noon.

The Pontiac will be manufactured as a Pontiac Six and a Pontiac V-8, it has been disclosed. It is said the new models contain all of the engineering developments of the past year, including free wheeling, syncro-mesh shift and ride control. Prices have not yet been disclosed.

TAKES 5-YEAR LEASE

Jersey City, N. J., Jan. 1.—The service station on a plot 55x60 feet at the northwest corner of Newark Avenue and James Street, Jersey City, was leased to Jack Gordon for five years from January 2 at a rental of $1,080 a year for the first two years and at $1,200 a year thereafter.

TECHNOLOGY DEPT.

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmission Make	Transmission Speeds	Transmission Type	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Springs Rear	Spring Shackles	Chassis Lubric.	Tires
Auburn 8-100	Chain	Del-R	Del-R	Long	D	3	SM-LGS-F	U	Col	4.70	M	Ross	S 56¾	Own	Bijur	17x6.00
Auburn 12-160	Link	Del-R	*Del-R	Long	D	3	SM-LGS-F	M	Col ½	*4.55	Bendix	Ross	S 56¾	Own	Bijur	*17x6.00
Austin	Gear	Aut-L	*Aut-L	Rock	WG	3	——	S	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 32-50	Tex	Del-R	Del-R	Own	O	3	SM-F	O	Own ½	4.60	Own	Sag	S 56	Tryon	Al-Z	18x5.50
Buick 32-60	Tex	Del-R	Del-R	Own	O	3	SM-F	O	Own ¾	4.54	Own	Sag	S 55¼	Own	Al-Z	18x6.00
Buick 32-80	Tex	Del-R	Del-R	Own	O	3	SM-F	O	Own ¾	4.27	Own	Sag	S 58⅞	Own	Al-Z	18x7.00
Buick 32-90	Tex	Del-R	Del-R	Own	O	3	SM-F	O	Own ¾	4.27	Own	Sag	S 58⅞	Own	Al-Z	18x7.00
Cadillac 355 B	Morse	Del-R	Del-R	Own	O	3	SM-F	S	Own ¾	4.60	Own M	Sag	S 58	Own	Alem	17x7.00
Cadillac 370 B	Morse	Del-R	Del-R	Dwn	O	3	SM-F	S	Own ¾	4.80	Own M	Sag	S 58	Own	Alem	17x7.50
Cadillac 452 B	Morse	Del-R	Del-R	Own	O	3	SM-F	S	Own ¾	4.64	Own	Sag	S 60	Own	Alem	18x7.50
Chevrolet	—	Del-R	—	Own	O	3	SM-F	—	Own ½	——	—	Sag	S 54	——	Alem	18x5.25
Chrysler 6	Morse	Del-R	Del-R	Borg	O	3	BW-F	U	Own ½	4.60	H	War	S 53⅝	Tryon	Al-Z	19x5.25
Chrysler 8 De L.	Morse	Del-R	Del-R	Borg	O	4	BW-F	—	Own ½	4.30	H	——	S 54⅝	——	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	Borg	O	4	BW-F	—	Own ½	3.82	H	Ross	S 57½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	D	3	——	*	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	Borg	O	3	BW-F	—	Own ½	4.33	H	Own	S 53⅜	——	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	Borg	O	3	BW-F	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	*Aut-L	Borg	N	3	NP-F	S	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	O	3	BW-F	S	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	O	3	BW-F	S	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 612	Morse	Aut-L	*Aut-L	Borg	W	3	——	S	Own ½	4.40	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W	3	——	S	Own ½	4.40	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W	3	——	S	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	*Aut-L	Own	O	3	BW-F	S	Own ½	5.40	Bendix	Gem	S 54⅛	Own	Alem	19x5.00
Ford A	Var	Own	*Own	Own	O	3	——	S	Own ¾	3.78	M	Gem	S Tr 39	Own	Al-Z	19x4.75
Fr'nklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	*	—	——	M	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Fr'nklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	*	—	——	M	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	*Del-R	Br-L	WG	3	——	S	Own ½	‡4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham 6	Link	Del-R	Del-R	Long	WG	3	WG-F	U	Sal ½	4.45	H	Ross	S 54	ERS	Al-Z	17x5.50
Graham Std. 6	Link	Del-R	*Del-R	Long	—	3	BW-F	—	——	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	*Del-R	Long	—	4	BW-F	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	*Del-R	Long	—	4	BW-F	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	*Del-R	Long	—	4	BW-F	—	——	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Graham, Bl.-Str.	Link	Del-R	Del-R	Long	WG	3	SM-WG-F	S	Sal ½	4.30	H	Ross	S 54	ERS	Al-Z	17x6.00
Hudson Greater 8	Morse	Aut-L	*Aut-L	Own	O	3	BW-F	S	Own ½	4.64	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen. 6	Chain	Aut-L	*Aut-L	Borg	WG	3	BW-F	M	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen. 8	Morse	Aut-L	*Aut-L	Borg	WG	3	BW-F	U	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	WG	3	BW-F	U	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	WG	3	BW-F	U	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle 345 B	Morse	Del-R	Del-R	Own	O	3	SM-F	S	Own ¾	4.60	Own M	Sag	S 58	Own	Alem	17x7.00
Lincoln	——	Aut-L	*Aut-L	Long	O	3	BW-F	S	Tim F	4.58	Bendix	Own	S 62	Own	Alem	7.00x19
Lincoln 12	Chain	Aut-L	Aut-L	Long	O	3	SM-F	S	Own F	4.58	*Bendix	Own	S 62	Own	Alem	18x7.50
Marmon 70	Diam	Del-R	*Del-R	Rock	WG	3	BW-F	S	Sal ½	4.70	Bendix	Ross	S 54⅛	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	*Del-R	Rus	D	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	M	3	BW-F	S	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Var-G	Aut-L	*Aut-L	Borg	O	3	SM-DG-F	O	Own ½	4.73	M	Ross	S 50⅞	Own	Alem	29x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O	3	SM-DG-F	O	Own ½	4.73	M	Ross	S 50⅞	Own	Alem	29x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O	3	SM-DG-F	O	Own ½	4.46	M	Gem	S 55	*	Bijur	28x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O	3	SM-DG-F	O	Own ½	4.50	Bendix	Gem	S 57⅛	†	Bijur	31x6.50
Oakland V-8	Link	Del-R	Del-R	Own	M	3	SM	M	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M	3	SM	U	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	N E	Dyn	Long	O	4	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	6.50x19
Packard 903-904	Morse	N E	Dyn	Long	O	4	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	7.00x19
Peerless St. 8	Link	Aut-L	*Aut-L	Rock	WG	3		S	Sal ½	4.70	Bendix	Ross	S 56⅜	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Link	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 54	Chain	Del-R	*Del-R	Long	O	3	SM-F	S	Own ½	4.42	Bendix	Ross	S 61	Faf	——	18x6.50
Pierce-Arrow 52	Chain	Del-R	*Del-R	Long	O	3	——	S	Own ½	4.42	Bendix	Ross	S 61	Faf	——	18x7.00
Pierce-Arrow 53	Chain	Del-R	*Del-R	Long	O	3	——	S	Own ½	4.42	Bendix	Ross	S 61	Faf	——	18x7.00
Plymouth	Var	Del-R	Del-R	Own	O	3	BW-F	O	Own ½	4.33	H	War	S 53⅜	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	O	3	——	M	Own ½	4.55	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 55¾	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Reo 8-25	Link	Del-R	*Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Rockne 6-25	Morse	Aut-L	*Aut-L	Borg	O	3	SM-BW-F	M	Spic ½	4.27	Bendix	Ross	S 54	Tryon	Al-Z	18x5.25
Rockne 6-75	Chain	Aut-L	*Aut-L	Borg	O	3	SM-BW-F	M	Own ½	4.73	Bendix	Ross	S 54	Tryon	Al-Z	18x5.50
Studebaker 6-55	Chain	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.27	Bendix	Ross	S 54	Tryon	Alem	18x5.50
Studebaker Dict. 62	Cel	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	18x5.50
Studebaker Com. 71	Cel	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 56	Faf	Alem	18x6.00
Studebaker Pres. 91	Var-G	Del-R	*Del-R	Borg	O	3	BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Alem	18x6.50
Stutz LA	Link	Del-R	Del-R	Borg	D	4	——	U	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	Link	Del-R	Del-R	Long	D	4	——	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	Link	Del-R	Del-R	Long	D	4	——	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	Link	Del-R	Del-R	Long	D	4	——	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Link	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.60	Bendix	Own	*S 49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Link	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Link	Aut-L	*Aut-L	Rock	O	3	BW-F	S	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00
Willys-Knight 95	Link	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.89	Bendix	Gem	S 51	Tryon	Alem	19x5.00

KEY TO ABBREVATIONS

Weight — ‡Austin standard 2 passenger coupe. **Hupmobile model H weighs 4,095 pounds, and model U 4,360 pounds. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base, which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base. †7-passenger sedan.

Engine Make—Con, Continental; Lyc, Lycoming, Hall, De Vaux-Hall Motors Corp.

Thermostat—Bish-Bab, Bishop & Babcock, Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Har, Harrison; Pines, Pines Winterfront Var, various makes. *Using Dole and Bish-Bab.

Valve Arrangement—L, L head; H, horizontal. O, overhead; K, sleeve valve; LV, V-type L head. *Air-cooled. †Thermo syphon water circulation.

Piston Material—*Alum, aluminum with invar struts. Alum, aluminum alloy; CI, cast iron; S, St, semi-steel.

Oil Purifier—Pur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company. Ste, Stewart-Warner; Ski, Skinner; Flo, Floato; Cuno, Cuno Engineering Corp. *Using both Floato and Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; Dyn, Owen-Dyneto Corp.; N E, North East. *Nash.—Indicates twin ignition. *Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission Make—D, Detroit Gear; WG, Warner Gear Company; M, Muncie Gear Company; O, Own; N, New Process Gear Corp.; W, Warner Corp. *Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets, according to body type.

Transmission Type—DG, Detroit Gear & Machine Co.; LGS, The LGS Corp.; F, Free Wheeling; SM, Synchro Mesh; BW, Borg-Warner; NP—New Process Gear Corp.; WG, Warner Gear Co.

Universals—U, Detroit Universal Products; S, Spicer Mfg. Corp.; O, Own, M, Mechanics Universal Joint Company. *Cord using Detroit Universal Products and Mechanical Universal Joint Co.

Rear Axle—Col, Columbia; Sal, Salisbury; Spic, Spicer Mfg. Corp.; Tim, Timken; N.P., New Process Gear Corp.; ½, Semi-floating; ¾, ¾ floating; F, Full floating.

Ratio—*Dual ratios on custom models. †The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp. *Equipped with Vacuum Booster.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw. Sy-B, Saylor-Beall Manufacturing Company; War, Warner; N.P., New Process Gear Corp.

Rear Springs — S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Exton Products, Inc.; Inlox—Inland Mfg. Co.; *Tryon, front, ERS, rear. †Own, front, ERS, rear.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

Tires—Auburn 12, custom models equipped with 17x6.50.

LANG SUCCEEDS RICE AS G. E. PUBLICITY HEAD

Schenectady, N. Y., Jan. 1.—Chester H. Lang, formerly assistant manager of the publicity department and then controller of the budget of the General Electric Company, has been appointed manager of the publicity department to succeed Martin P. Rice, who retired December 31 after more than 37 years of service with the company.

KORDAS APPOINTED

Chicopee, Mass., Jan. 1.—Anthony J. Stonina announces that Sebastian Kordas has been named salesmanager for the A. J. Stonina Sales Company, Hudson & Essex dealers. Kordas has already assumed his new duties. Kordas, until he assumed his new duties, was assistant advertising manager for the C. F. Church Manufacturing Company of Willimansett.

NOTICE

Please see the fifth column to the left of this advertisement giving steering gear information. Notice the outstanding Ross predominance. The actual figures are:

ROSS

39

FIRST Competitor

14

SECOND Competitor

12

THIRD Competitor

4

Build Their Own

10

There is only one CAM & LEVER Steering Gear

ROSS

Cam & Lever Steering

What will the Trade Read on January 12?

The only up-to-date trade publication they can read is Automotive Daily News, to be published that same day. But every day during the show, starting with January 9 and continuing through the following week, there will be a show issue. Each issue will contain fresh news of the trade, fresh news of dealer meetings, conventions, speeches made the night before, etc. There will be news of activities of men and companies, distributed to the trade while it is still news. No other automotive paper can give such service, because Automotive Daily News is the only automotive business paper that is published every day.

Advertisers who want to sell their goods on Tuesday and Wednesday, who want to reach dealers on those days and on Thursday and Friday or Monday or Saturday, should study the table below and note the wide distribution the issues will receive over and above our regular circulation.

If you want to *sell every day* and make dealer connections every day, use Automotive Daily News every day.

Show Issues of Automotive Daily News

REACH 150,000 TRADE BUYERS DURING N. Y. SHOW WEEK

DISTRIBUTION	FORMS CLOSE 5 p. m.	PUBLICATION DATES
Regular circulation about 10,000 daily—but in addition (see table of additional distribution below).	January 7	Saturday, Jan. 9
	January 8	Monday, Jan. 11
	January 9	Tuesday, Jan. 12
	January 11	Wednesday, Jan. 13
	January 12	Thursday, Jan. 14
	January 13	Friday, Jan. 15

REACH 150,000 TRADE BUYERS DURING CHICAGO SHOW WEEK

DISTRIBUTION	FORMS CLOSE 5 p. m.	PUBLICATION DATES
Regular circulation about 10,000 daily and additional distribution shown below.	January 28	Saturday, Jan. 30
	January 29	Monday, Feb. 1
	January 30	Tuesday, Feb. 2
	February 1	Wednesday, Feb. 3
	February 2	Thursday, Feb. 4
	February 3	Friday, Feb. 5

Low Cost

Rates are the same as for regular runs. Full page, $350; half page, $175. Other sizes in direct proportion. Much lower rates on contract

ADDITIONAL DISTRIBUTION EACH DAY DURING NEW YORK AND CHICAGO SHOW WEEKS

BY MAIL (daily average)	BY MEN (daily average)
5,000 additional dealers 500 additional jobbers 1,000 additional factory executives 1,000 bus operators 1,000 truck fleet owners 3,500 service stations	3,000 copies will be distributed daily at show booths, hotels, dealer meetings, conventions, etc.

Editorial Coverage

Every day there will be carried news of the show, of dealer meetings, conventions, banquets and other gatherings of men in the trade. There also will be carried descriptive details and illustrations of new accessories, parts, shop equipment, etc., announced at show time, details of new cars and trucks will be carried in these specials as soon as the manufacturers make their announcements. There also will be carried up-to-the-minute statistics, registrations and other valuable reference material. As usual news of the industry away from the show will be carried daily.

Automotive Daily News is the acknowledged leader in the news field, supplying more news more rapidly than any other medium.